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Sensing it Coming: Regarding the Aesthetics of Risk

Abstract

Today the ubiquitous guidance, warnings and protocols of risk management construct possible futures as risks to be managed. How is this need to manage risk transforming the contemporary visual language? Are its rhetorics of danger, reassurance or rationality effectively convincing us that we are prepared? Can art reconcile us with these issues and be a safe space for constructing resilience? This dissertation focusses on the rhetorics of risk from the perspective of art and visual culture, examining warnings, instructions, drills and data visualisations across risk and art.

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INTRODUCTION

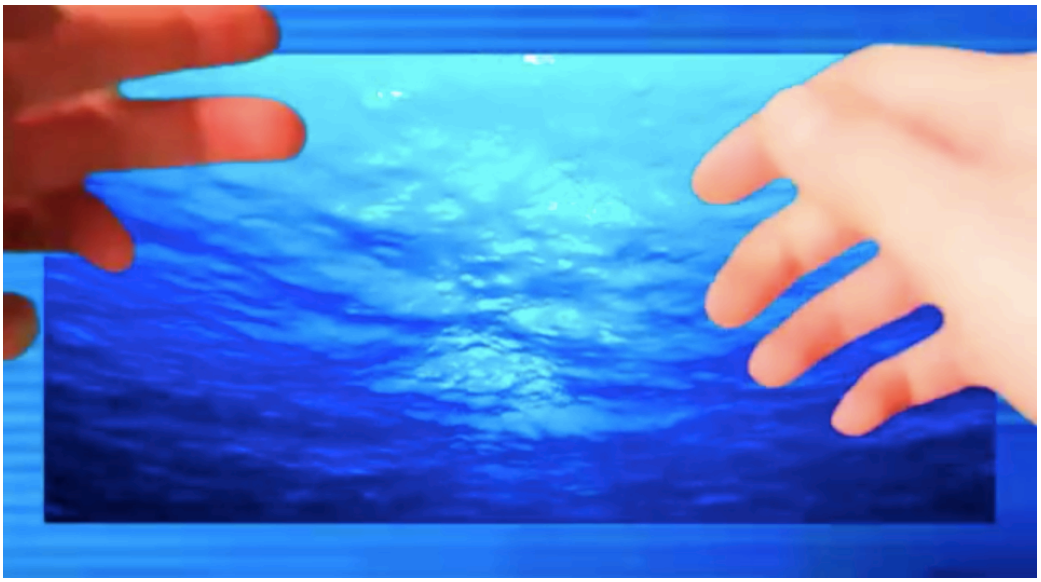

FIGURE 1 HEATHER PHILLIPSON, *IMMEDIATELY AND FOR A SHORT TIME BALLOONS WEAPONS TOO-TIGHT CLOTHING WORRIES OF ALL KINDS*, 2014. FILM STILL © HEATHER PHILLIPSON

Risks are, in plain language, hypothetical ideas about what can happen in the future, they are a matter of perspective and what we might think of as 'open' futures. The anthropologist Mary Douglas famously wrote "Can we know the risks we face, now or in the future? No, we cannot"; "yes but we must act as if we do."[1] In other words, it is only when some dangers are selected for attention that they become risks.

This dissertation focusses on the ways in which dangers are framed and risks are produced as a part of the contemporary visual language to transform public perceptions. It is an attempt to realign the established social sciences research into the 'perception of risk' with a field such *aesthetics* that has traditionally been concerned with the study of perception (from the Greek word *aísthēsis* sensation, perception). In confronting the quantitative, or calculative approaches to risk of today, including psychometric methodologies, this study centres on how art and design have been (and can be) mobilised to transform risk perceptions, assuming that, when it comes to public health and risk, artworks can affect attitudes, opinions and interpretations.

In the autumn of 2015, I co-curated the exhibition *Risk,* at Turner Contemporary, in Margate (10 October 2015–17 January 2016). The public were welcomed at the entrance with a film installation by the British artist Heather Phillipson. "You won't believe the stuff

[1] Mary Douglas and Aaron Wildavsky. *Risk and culture: an essay on the selection of technical and environmental dangers*. (Berkeley: University of California Press, 1983), 1.

that goes on here, just look around, just look at all the pictures… yes, it's unpredictable".[2] So said the film to its viewers, as they were sitting in an empty inflatable pool, the kind used to give birth. Headphones on, the artist guided visitors through a world of promised opportunities and risks: the slogans that we hear, the lessons we learn, disgusting things that make us cringe. Through the montage of everyday scenes, jokes and lyricism, viewers were invited to reflect on the absurdity and anxiety of modern life: phone calls, geography lessons, balloons, romantic melodies, paintings, commuters and the sound of weapons. In between the imagery, the artist's fingers could be seen on the film screen frantically scrolling through iPad imagery (Figure 1)"And now wash your hands", instructs a hospital sign, followed by images of in-depth, methodical, compulsive hand-washing — a gesture that returns through the film like a refrain. Presented on a large HD screen suspended above the inflatable pool, furnished with plastic curtains and water splash mat, this artwork's slightly medical yet playful aesthetic was both inviting and awkward for visitors. Like my exhibition co-curators, I was excited about positioning this installation at the entrance, as it perfectly encapsulated the absurdity of ordinary life in a "risk society", where to be alive also means to be at risk.[3] The washing hands sign on the film was for me not just a reminder of the invisible germs that threaten us, but also a cue to the fact that risks are both ubiquitous and invisible.

The exhibition *Risk*, is the seed from which this research has germinated. The exhibition invited publics to explore how artists have embraced or escaped, narrated or invented, activated or managed risk, in their work. It was the first attempt to explicitly address the topic of risk in a major UK public gallery. As risk was energetically debated in social science at the time, and risk assessments had become a compulsive compliance for every organisation in the UK, new risks were continuously being produced and mediated by precautionary measures and news of disasters.[4] At the same time risk had also become a buzz word in corporate and creative industries alike, not to mention in the self-indulgent language of financial investment. Taking risk was, and often still is, the anthem of self-proclaimed "ground-breaking" entrepreneurs and of the institutions that aimed at being

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[2] Heather Phillipson, *Immediately and for a short time balloons weapons too-tight clothing worries of all kinds*, film installation, 2014.

[3] Risk society is a term coined by Sociologist Ulrich Beck. The popularity and efficacy of the expression, however, transcends Beck's ideas about large-scale disasters threatening contemporary societies in order to capture a broader understanding of a society threatened by – and also governed through – risk. See Chapter 1 and Ulrich Beck, *Risk Society: Towards a New Modernity*, (London: Sage Publications, 1992).

[4] These include the Summer School "Risk Societies and Cosmopolitanism", with Rosy Braidotti and Ulrich Beck (2012), The Leverhulme Funded Project "Governing Emergencies" (2014) and the European Research Council supported project "Organising Disasters" (2015), Goldsmiths University, in which I took part. See also Chapter 2.

drivers of innovation, including museums and art schools.[5] In light of this context, the exhibition asked if art can create a space where we are able to reconcile ourselves with the ubiquitous presence of risks in contemporary life.

Arguing that risk-taking has been a deliberate artistic strategy and concern in the 20th century — with artists embracing the creative (or disruptive) forces of gravity, entropy or chance in their work — the exhibition presented an opportunity to look back at how art has toyed with danger and with testing audience perception of safety and threat. As a curator my hope was that these artistic practices would encourage viewers to reflect on how these dynamics inform our ordinary social condition beyond the artistic realm. Through engaging with surveillance, warfare, nuclear threat and the challenges to human rights, the artworks in the exhibition drew attention to how 'being at risk' is an almost inescapable social condition, regardless of whether one is inclined to embrace it or not. This thesis will provide an opportunity to return to some works in the exhibition (as well as others) which illuminate the relation between risk and art while shifting the focus from the curatorial ideas behind it. If the exhibition statement invited "audiences to consider risk as a positive and creative aspect of their everyday lives", my research draws attention to deeper phenomena that were beyond the exhibition's scope.[6] The greater pervasiveness of the visual language of risk, one that constructs possible futures as risks to be managed, requires further visual investigation both in and beyond the realm of art.

Today's social, technical, political and economic turbulence is greater, arguably, than even half a decade ago. As the issue of risky artistic strategies has been confined to academic and artistic interrogation of mainly performance art, questions about the social dimension of risk have acquired greater prominence.[7] Threats of climate change, aggressive nationalism,

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[5] In light of the same sentiment, Anthony Giddens wrote that "Risk needs to be disciplined, but active risk-taking is a core element of a dynamic economy and an innovative society". Anthony Giddens, *Runaway world: how globalization is reshaping our lives*, (New York: Routledge, 2000), 29. For discussion about risk-taking in art institutions, see for example the Art of Risk Symposium organised by Leeds University (2014) and the International Museums Association Annual Conference dedicated to Risk discussed in Chapter 2. For Risk in art schools see University of the Arts London, *The Creative Stance,* (London: Common Editions, 2016).

[6] Turner Contemporary, "Risk", press release, October 10, 2015, accessed 25 April 2019, http://www.newexhibitions.com/uploads/upload.001/id00724/press_release.pdf

[7] For risk in performance art, see for example da Silva Junior, João Cerqueira, *Reflections on Improvisation, Choreography and Risk-taking in Advanced Capitalism*. University of the Arts Helsinki, Theatre Academy, 2017. https://helda.helsinki.fi/bitstream/handle/10138/292416/Kinesis_08.pdf?sequence=1&isAllowed=y. For the role of art in the perception of technological risk, see Sabine Roeser, Veronica Alfano, and Caroline Nevejan, "The Role of Art in Emotional-Moral Reflection on Risky and Controversial Technologies: the Case of BNCI", in *Ethic Theory Moral Practice,* 21 (2018): 275–89, accessed 23 October 2019, https://doi.org/10.1007/s10677-018-9878-6. See also the upcoming "Art of Risk Conference", February 27–29, 2020, https://www.helvetas.org/en/switzerland/who-we-are/events/Art-at-Risk-Conference

artificial intelligence and natural disasters have made the headlines of news, political statements and art exhibitions, drawing attention to the greater risks that we face as societies, as a human race, and as a planet.[8] Never before has the future been so 'present' or the necessity of dealing with it felt so strong. The title of this dissertation, *Sensing it Coming*, draws attention to this 'presence' of the future, as societies prepare for real and imagined disasters.[9] It argues that the contemporary awareness of risk is created by (and exposes us to) practices that I call "predictive memorialization" which translate possible risks in the future into tangible experiences that we can see, sense and feel. These experiences transform our relations to danger. Everyday health warnings, warnings of terrorist threats, evacuation routes and drills, maps of the sea-level rising represent possible future events as traceable, and in a sense as already part of our histories. They do not merely describe possible scenarios, but also prescribe "plans for actions".[10]

This dissertation examines the ways in which we engage with these plans for actions. Warning messages, survival instructions, drills, statistical visualisations of all kind have progressively emerged as essential techniques for risk communication and analysis. Through this rich repertoire of what I call "risk anticipatory technologies (or techniques)" possible risks become manifest or tangible, orienting how people perceive the world and often succeeding in making them feel either safe or under threat. It is in the encounter with this perceptual repertoire, I argue, that the *aesthetic* experience of risk takes place. Here different senses, perceptions or imaginations of the future are produced for the assessment, prevention or communication of risk; here the experience of danger is mediated through anticipatory techniques.

My contribution to what I refer to in the title as "the aesthetics of risk*"*, focusses on the methods or techniques that, devised to anticipate risk, enable people to see, sense and deal with 'possible' futures. It understands the aesthetic of risk as a visual language, a rhetoric that through linguistic, pictorial or gestural methods redistributes perceptions, fears and

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[8] See World Economic Forum, *Global Risk Report 2019,* 14th Edition, 16 January 2019, accessed May 15, 2019, http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf.

[9] About the "presence" of the future, see Ben Anderson, "Preemption, precaution, preparedness: Anticipatory action and future geographies", *Progress in Human Geography* 34.6(2010): 777–98. Accessed 22 April 2018, https://journals.sagepub.com/doi/10.1177/0309132510362600. Or Louise Amoore, *The politics of possibility: Risk and security beyond probability,* (Durham, NC: Duke University Press, 2013).

[10] I borrow the terminology "plans for action" from Orit Halpern; see Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945*, (Durham, NC: Duke University Press, 2014), 21.

understanding of what might happen.[11] The aesthetic of risk manifests itself in and beyond public health, finance or risk management, way into the artistic imagination.

Research in political science has shown how risk 'representation' technologies transpose possible risks into a visual dimension that constructs a particular understanding of risk situations.[12] Critical studies in the fields of art and visual culture, including aesthetics have a long history of discussing the modes of responses to representations of disasters, suffering or violence in an artistic context and in the media. These studies, however, have yet to critically investigate how risks are usually constructed, represented and visualised through the use of a specifically instructional, practical or proactive rhetoric. Nor have they investigated how this instructional style can be reflected through artistic practice. This thesis will endeavour to fill this gap through a systematic visual analysis of warnings, instructions, drills and data visualisations alongside artistic practices where these 'risk representation technologies' are featured (or appropriated).[13]

This dissertation, moreover, identifies the aesthetic dimension as a crucial reflective aspect of our perception of risk *because* it opens up possibilities to sense risk without directly endangering ourselves, our environment and our planet. Risk anticipatory techniques, arguably occupy a *safe-space* where the encounter with possible risks can be rehearsed, and suitable responses developed. Similarly, witnessing extreme performance art cannot represent a form of endangerment, but an experience that mediates risk, (and enables us to sense it) from the position of the safe space that art occupies. The aesthetic of risk cannot be apprehended without this condition of safety, (in situations of real danger, it ceases to be aesthetic to become instrumental [or active]) and it is for this reason that art has an important part to play in it.[14] I will therefore build upon existing research exploring how effectively art

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[11] See the definition of Aesthetic Intelligence in Pateman's guide to aesthetics: "The aesthetic involves both the perceptual and the affective. The education of aesthetic intelligence is therefore connected with the development of sensation and feeling into what is commonly conceived as sensibility". Trevor Pateman, *Key Concepts: a Guide to Aesthetics, Criticism and the Arts in Education*. (London: Taylor and Francis, 2016), 7. For an example of rhetoric analysis applied to visuals see Barth's important text "Rhetoric of the image" in Roland Barthes, *Image-music-text*, (London: Macmillan, 1977), 32-51.

[12]Hermann Mitterhofer and Silvia Jordan, "Imagining Risk - The visual dimension in risk analysis" in *Routledge Handbook of Risk Studies*, eds. Adam Burgess, Alberto Alemanno, and Jens O Zinn, (London; New York: Routledge, 2016). See also Louise Amoore, "Lines of sight: on the visualization of unknown futures", *Citizenship Studies*, 13:1(2009): 17–30, DOI: 10.1080/13621020802586628.

[13] Risk in architecture, fashion and sound are other possible avenues that were unfortunately beyond the scope of this thesis.

[14] This echoes Burke's concept of the Sublime. The aesthetics of risk are, however, in other respects distinctive from this. Although high-risk sports involve experiencing risk directly and not aesthetically, they nevertheless, are highly regulated because they allow people to take risk responsibly. There is a huge difference between practising extreme sport (which involves taking risk) and watching extreme sports on TV (aesthetic experience).

can help publics to reconcile with risk, and focus on the ways in which we can engage with (and make the most of) the *safe-space* that art (and in the broader sense the art of experimenting safely) enables us to experience when it comes to risk.

In a time when data visualisations, scenario modelling and public information campaigns are shaping (or attempting to shape) the pre-emptive measures that we take to avoid or calibrate risk, we must have better tools available in order to understand its visual vocabulary. It is a task that is as urgent now as ever, not just to better communicate or forecast 'risk trends', but also to disentangle the complex interests and politics that they often serve. Whilst risk techniques construct narratives about the dangers that we may face that can often be used to instrumentalise public opinion and justify pre-emptive measures, they also present a significant opportunity to mediate, rehearse and prepare for the "real" risks that are coming.

FIGURE 2 EMERGENCY LANDING SAFETY PANEL, FROM ELIAS MODIG 'S *DESIGN FOR IMPACT : AIRLINE SAFETY CARDS*, (LONDON: LAURENCE KING, 2002).

Interdisciplinarity as an Ethical Position

Risk messages and anticipatory techniques have both a rhetorical and a performative function: not just by naming, representing or enacting risk they create it, but also, in the name of risk, they can transform entire situations, subjects or codes of conduct. In this sense, risk operates through "speech acts", or in Judith Butler terms, through *performatives* that "do things in the world" on a linguistic, pictorial or gestural level.[15] They shape subjects, societies and methods of governance according to who or what is deemed as the threat, doing and performing in the present our attempts to control a future that might never happen.

This dissertation deploys aesthetics as possible, alternative method for engagement with risk and risk studies; one that by investigating the "perceptible things" (αἰσθ-τα: of all things perceptible by the senses) that are created *for* and *through* the management of risk, reconnects the visual dimension to the social and linguistic roots of performativity and its

[15] Judith Butler, Excitable Speech: A Politics of the Performative (Routledge Press, 1997). See also John Langsha Austin, How to do things with words: the William James lectures, delivered at Harvard Univ. in 1955. (Oxford: Clarendon Press 1975).

constitutive role in society. Assuming that what we see (and how) matters, I shall therefore adopt a rhetorical-aesthetic approach that (following Butler) expands the dominie of rhetorics beyond pure linguistics into the realm of the visible and gestural, as an art of shaping attitudes and perceptions and affect.

Clearly, my approach parts ways with the Kantian tradition, which sees aesthetic experience as a pleasure devoid of self-interest. [16] I instead draw on an older understanding — the Greek notion of aesthesis, which considered most kinds of human feelings or emotions, including those that in conventionally Kantian terms involve self-interest. The human desire for safety and for self-preservation, and emotions such as anxiety or trust in our own resilience are, I believe, not the exclusive preserve of psychology: they are also key to the art that I will be looking at in this thesis – that is, art that takes the social dimension of risk as its theme.

I will not therefore engage with questioning categories such as "the beautiful" that have long been the object of aesthetic discussion, to demonstrate instead how that the aesthetic dimension performs an important ethical function within society and one that transcends mere positivist or psychological approaches to risk perception. To move in such direction, however, I should first acknowledge those internal debates within the field that have progressively liberated aesthetics from the "complex of inferiority" that Kant attributed to it, as much as from Greenberg's supposed autonomy of art form ideology.[17]

If for Kant the aesthetic appreciation was just a sensory accessory to the superior, universal power of reason (and therefore alienated from moral and ideological judgments), it was Romantic philosopher Shiller who invested aesthetic education with a significant (even ideal) function within society. [18] Moral judgements about the public good, he thought, are not the product of reason, but of a more nuanced idea of "common sense", a combination of sensuous, emotional and rational understandings that manifested itself through the category of the "beautiful". In Shiller idealistic mind Kant's separation between objective reason and subjective intuition, individual freedom and greater good, could be harmoniously

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[16] According to the Kantian tradition, aesthetic and moral judgements oppose one another. Immanuel Kant, Critique of the Power of Judgment (1790), trans. Paul Guyer, and Eric Matthews, (Cambridge: Cambridge University Press, 2000). See also James Shelley, "The Concept of the Aesthetic", The Stanford Encyclopaedia of Philosophy (Winter 2017 Edition), Edward N. Zalta, ed., accessed 20 April 2019, URL =<https://plato.stanford.edu/archives/win2017/entries/aesthetic-concept/>.

[17] Clement Greenberg, "Modernist painting." *Modern art and modernism: A critical anthology* 5, no. 6 (1982).

[18] Friedrich Shiller, "On the Aesthetic Education of Man in a Séries of Letters." *Trans. and ed. EM Wilkinson and LA Willoughby,* (Oxford: Clarendon Press, 1967).

reconciled through their combined realisation in the work of art which "leads everything dissociated within modernity." [19]

However, it is not until the Frankfurt School that we see real emancipation of aesthetics from an idealised notion of beauty to be recognised a primary position in the very fabric of society. This position is, of course, two-folded: on the one hand, Benjamin's materialist aesthetic that takes advantage of the dissolution of art in everyday life offered by the mediums of mass communication, on the other Marcuse's and Adorno's idealist positions, where it is only the encounter with the work of high art formal qualities what offers opportunities for the emancipation of consciousness.[20]

More recent critique has connected aesthetic with the exercise of ideology and disciplinary power. As Terry Eagleton tells us, notions of taste and good manners have replaced, in modern industrialised societies what was of the absolute monarch: via defining what was acceptable to the senses they have affirmed the rules of living in common.[21] At similar conclusions came sociologist Norbert Elias, who studied the 'civilizing process' of the development of self-consciousness and 'manners' through analysis of books of etiquette from medieval times to the pre-modern period.[22]

The philosopher Jacques Rancière, more recently spoke of aesthetics in terms of "distribution of the sensible" (*partition du sensible*). According to this philosopher the aesthetic dimension demarcates what is visible from what is not, and in this way, it distributes the sensible experience. This distribution, however, is never neutral as it reflects the politics of representation of dominant systems (those in power) vs their less represented counterparts.[23] The aesthetic then is always political for Rancière regardless of its subject matter or mode of operation, as it provides the terrain for political ideas and situations to be redistributed visually (or perceptually). Rancière vision not just shifts the focus away from the supposed independence of aesthetic and moral judgements, but also considers the arts possible emancipatory role in respect to the contemporary structures of power. His emphasis on the politics of the aesthetic, and the power relations they deploy, however, does not reflect the essential scope of this research which is much broadly interested in discovering how art

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[19] Schiller, Ibidem, 139.
[20] David Ingram, "Habermas on aesthetics and rationality: Completing the project of enlightenment." *New German Critique* 53 (1991): 67-103.
[21] Terry Eagleton, "The ideology of the aesthetic." *Poetics Today* 9.2 (1988): 327-338.
[22] Norbert Elias and E. F. N. Jephcott. 1978. *The civilizing process [Vol. 1] The history of Manners* (Oxford: Blackwell, 1978).
[23] Jacques Rancière and Gabriel Rockhill, *The Politics of Aesthetics: The Distribution of the Sensible,* (London: Bloomsbury Academic, 2004).

and aesthetic can become part (and contribute to) the complex interdisciplinary conversations that a field such as risk demands.

Habermas's notion of aesthetics as plane for "*experiential* reconciliation", that mediates and communicates to an all system of moral and ethical values, seams instead much more appropriate.[24] For Habermas, the aesthetic is part of a complex system of "communicative action" which is also made of more positivist forms of understanding and expertise. All these forms of knowledge are, for Habermas, equally necessary but not sufficient (and complementary) for the well-being of society and the role of the aesthetic is to counterbalance the rationalising power of positivist reason presented by capitalism and self-interest.[25]

It is in this direction that the contribution of aesthetic is (and should be considered): as a form of knowledge that *mediates* subjective perceptions and the common good (ethics) and that must be taken into account especially when decisions require to reconcile different understandings of the common good beyond self-interest and profit. For Habermas, social value exists in the very interplay between cognitive, ethical, and aesthetic modes of argumentation as complementary for the formation of knowledge.[26] His view presupposes interdisciplinarity as an essential part of public discourse in a way that prefigures some of Latour more recent considerations about the role of the critic in the Anthropocene: "he is not the one who debunks, but the one who assembles…the one who offers the participants arenas in which to gather".[27]

The "utilitarian" framing of aesthetic just discussed, moreover, also justifies enquiries into the significance of art and cultural production, paving the way for what Umberto Eco called "a new relationship between the *contemplation* and the *utilization* of a work of art".[28] But how to engage with a vast artistic field that years of modernist and post-modernist critique have disenfranchised from any direct involvement in the serious matters of politics and decision making?

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[24] Ingram, *Ibidem*, 103.
[25] Habermas, Jürgen. *The Theory of Communicative Action: Lifeworld and Systems, a Critique of Functionalist Reason, Volume 2*. Vol. 2. (London: John Wiley & Sons, 2015).
[26] A parallel here can be traced with Guttari's reflections on Eco-aesthetics, where he argues that we should think ecologies across subjective, social and environmental registers. See TJ Demos "Contemporary Art and the Politics of Ecology", *Third Text*, 27:1 (2013), 1-9, DOI: 10.1080/09528822.2013.753187
[27] Bruno Latour, "Why has critique run out of steam? From matters of fact to matters of concern." *Critical inquiry* 30:2 (2004): 225-248.
[28] Umberto Eco, "The open work" (1962) in *Participation*, ed Claire Bishop (London: Whitechapel, 2010), 20 -40, 39.

Investigating the perception of risk from the perspective of radical, politicised performance art could have offered a productive mode of enquiry into the aesthetics of risk and indeed much of the existing literature on risk aesthetics, including John Welchman's volume and the writing of Alice O Grady, mainly focus on performative practices.[29] The dangerous feats of artists like Marina Abramovich (which I briefly discuss in Chapter 2), generate a mirroring, even cathartic effects in their publics who can undergo emotions such as fear, shock or anxiety (but also release tension when the performance is over, or only by experiencing the work from a position of safety). Political artists such as Graciela Carnevale and more recently Tania Bruguera have also created confrontational works where the public was respectively locked in an exhibitions space or offered cocaine.[30] Suppose we transpose the lesson from this kind of artistic practice into the realm of risk communication and management. In that case, there is certainly a lot to learn from the artist-public interrelation and the sapient triggering of confrontational or transgressive or even violent rhetorics, including perhaps a reflection on broader political and social conditions of endangerment or injustice that some of these artists more or less successfully criticise. Similarly, a focus on the relational aesthetics (art as relation) that sees artists as those who activate new forms of interaction between humans or with the material world can shed light on how the management of risk today has infiltrated most social interactions (see for example Santiago Sierra's use of exploitation to highlight human vulnerability or Liam Gillick's appropriations of corporate Perspex dividers).[31] All these approaches, however, connect the aesthetic experience of risk to the body and its relations, considering the proximities that performative and relational art generates as less disengaged and passive than so-called contemplative art and in this sense more emancipatory and empowering.[32]

They are, precisely for this reason, slightly limiting in respect to the broader scope that I believe the aesthetic of risk has. As Terry Eagleton has argued, not just the "aesthetic" is "born from a discourse of the body", but it is also what connects embodied feelings to the symbolic order (hermeneutics) thus helping us to formulate moral and ethical judgements that transcend self-interest.[33] The aesthetic of risk, in particular, has an essential focus on such forms of representation and presentation. The pervasiveness of the perceptual vocabulary of risk does not just manifest itself through generating feelings (or emotions) of

[29] Alice O'Grady, "Introduction: Risky Aesthetics, Critical Vulnerabilities, and Edgeplay: Tactical Performances of the Unknown." In *Risk, Participation, and Performance Practice*, (Chambridge: Palgrave Macmillan, 2017), 1-29.
[30] The works are: Graciela Carnevale, *Project for the Experimental Art Series*, 1968 and Tania Bruguera, *Untitled* (Bogotá, 2009).
[31] Nicholas Bourriaud, Relational Aesthetics, (Dijon: Les Presses du Re el, 2002).
[32] Bishop, Claire. "Antagonism and relational aesthetics." October (2004): 51-79.
[33] Eagleton, Ibidem, 327.

fear or reassurance, but also through performing 'neutral' (and for this reason less recognisable) forms of representation, metaphors and allegories that, as I have said, make the imagination of risk tangible and inform the disciplinary system of modern states.

Nevertheless, the instructional, proactive or rational rhetoric (or style) featured in most of the risk communication and management we see today has also entered artistic imagination as both a style, an appropriation and a reality to interrogate critically. The aesthetic of risk may secure, through this instructional style "the consensual hegemony which neither the coercive state, nor a fragmented civil society can achieve", but it can also be "the discourse of utopian critique of the social order", which appropriates similar methods as means for emancipation.[34]A poignant example might be the found in the health activism practiced by the Black Panther Party to fight against medical discrimination which Alondra Nelson recently described in her book Body and Soul.[35] It is along with these criteria that the selection of the artworks and artefacts in this dissertation is guided. It assumes the aesthetic as a much broader category than the artistic, which enables readers and publics to reflect on the condition of existence that the presence of risk produces in current society, and which in turn generate moral, ethical and political judgements.

I will therefore invite readers to consider the visual representations of risks (and their formal qualities) as sites where wider cultural, political, social and imaginative experiences are crystallised. In this sense, the research presented here pays much debt to the writing of Eco about the "open work", where the dualism between form and content (being and appearance), or 'active' and 'passive' spectator is overtaken by a view of the (art)work as "field of possibilities" that contain an infinite reserve of meanings and perceptions that we hunt for.[36] The utilisation of the work of art, in this context, is not derived from it being created with a particular function that we should recognise as art historians, but by its very openness and indeterminacy. As Nancy argues, this desire to engage with what art does in the world (rather than with what it represents) - with its performativity, does not necessarily imply to look at it as the product of power relations, but first and foremost as a perceptual object.[37] Not just art presents what is possible to our senses but confronts the finitude of individual understandings compelling us to perform our openness to indeterminacy. In short, by providing indeterminacy and openness as a mode of enquiry, every work of art contains the possibility of emancipation as opposed to parochial or populist forms of communication.

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[34] Eagleton, Ibidem, 337
[35] Alondra Nelson, Body and soul: The Black Panther Party and the fight against medical discrimination (University of Minnesota Press, 2011).
[36] Eco, *Ibidem.*
[37] Jean-Luc Nancy, "The Image: Mimesis and Methexis", *Nancy and Visual Culture,* editors Christine Giunta and Adrienne Janus, (Edinburgh: Edinburgh University Press, 2016) 95-119.

Nevertheless, even these forms of communication can be interrogated meaningfully, as objects that impact senses and make sense, and as both sensory and intelligible realities. Engaging with the reality of these perceptual objects (the reality of the image for Nancy) means to open oneself (or expose oneself) to the multiple ways in which they come to presence, in strange, unpredictable, ways and interfere to both collective and individual forms of existence.

The sensing of risk, then, entails that experience that, within the constraints of the disciplinary and behavioural apparatus of risk management, compels us to be and be open to indeterminacy and to embrace such indeterminacy as an essential part of our relation to risk. It is this openness to indeterminacy that sets the ground for listening to different forms knowledge, expertise and emotions, from the most rational to the most emotional, from the most objective to the most personal, from the most self-interested to the most selfless. Each of the risk images, techniques or technologies examined in this dissertation contain possibilities to reorient our propensities towards the future. In this sense, they are theoretical objects that occupy 'a supplementary or third space' (in this case the aesthetic) where different disciplines see their parameters being challenged when they are compelled to address common problems.[38]

Drawing from a variety of disciplinary sources, this research is committed to interdisciplinarity and to dialogues with other works in the field of visual culture, which according to W.J.T. Mitchell's definition, is a discipline that learns from the perspective of other disciplines.[39] "Our interdisciplinary moment is a move of survival" wrote Homi Bhabha in an interview with Mitchell; "the formulation of knowledges that require our disciplinary scholarship and technique but demand that we abandon disciplinary mastery and surveillance".[40]

Crucially, there are few fields beyond that of risk which demand an interdisciplinary "moment". A variety of disciplines including sociology, psychology, engineering, science, technology, and environmental studies converge in the field of 'risk'. The task of managing risk — in disaster management as much as in the everyday — requires conversations (and collaboration) between all these forms of expertise and people, all of whom are calibrating

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[38] "I see the ethics of the interdisciplinarity I am involved in, and that I think you're involved in too, as about the survival and translation of disciplines in a space that is not simply the space of one discipline or another, but, (…) a third or supplementary space". William J.T. Mitchell, "Translator translated. (interview with cultural theorist Homi Bhabha)", *Artforum* 33.7 (1995):80–84.

[39] William J.T. Mitchell, "Interdisciplinarity and Visual Culture", *Art Bulletin* 77.4 (1995): 540–44. In this article Mitchell famously wrote that "Visual culture is the visual construction of the social, not just the social construction of vision".

[40] W.J.T. Mitchell, "Translator translated".

their own interests for the 'greater good', if not for survival. However, not just every individual has a different perception of risk according to their own perspective and condition, but all too often specific interest groups bring their own agenda to the table when risks are distributed.[41] Risks of harm or of poor wellbeing in employees or tenants are often undermined or in conflict with the financial risk that regulate most budgetary decisions in industries, corporations and large institutions. Today the challenges of the Anthropocene are testing the methods, strategies and protocols of these liberal organizational systems. "Commercial insurers are finding their existing risk assessment tools progressively out-dated in a world where risk is no longer as predictable as it once was" wrote Tom Herbstain, from the Cambridge Institute for Sustainability.[42] As insurers struggle to quantify (and insure) against the risk of climate change, environmental scientists have to work with politicians and with the media so that environmental risks can be prioritised against established systems of profit. "The crisis of climate change" writes Dipesh Chakrabarty "calls on academics to raise above their disciplinary prejudices, for it is a crisis of many dimensions".[43]

Is risk the right framework for addressing these issues in the first place? Do we need to transition away from risk to another mode of engagement with the future? As mainly a first world signifier, risk is born from the narratives of progress, freedom and rationality, rooted in the illuminist idea that all humans are equals and all histories progress for the better. This universalistic project of rationality (illuminism), as Chakrabarty noted, has subsumed cultural particularities and subjectivities that have been swept up by the myth of progress and relegated in a condition of perennial "not yet".[44]

Even the narratives that explain risk as a form of progressive emancipation from fate to "human-made" fortune (Giddens, Berenstain) - and the distinction between Second and First Modernity (Beck, Giddens), are the product of this assumption.[45] As Mary Douglas tells us,

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[41] One example of this is the discrepancy between the risk of harm and the financial risk: in the recent Grenfell tower disaster in London, for example, which was due to the installation to a cladding system that was cheaper but less safe, it is not hard to imagine how for the decision makers the risk of 'not finishing the job in time or within the budget' was more tangible then the actual risk of harm.

[42] Tom Herbstein, *Insurance and the Anthropocene: Like a Frog in Hot Water*, (PhD diss., University of Cape Town, 2015), 3. Accessed 19 November 2019, https://open.uct.ac.za/bitstream/item/19275/thesis_law_2015_herbstein_tom_philip.pdf?sequence=1.

[43] Dipesh Chakrabarty, "The climate of history: Four theses." *Critical inquiry* 35:2(2009),197-222, 215

[44] Dipesh Chakrabarty, *Provincializing Europe: Postcolonial thought and historical difference*. (Princeton University Press, 2008).

[45] Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk.* New York; Chichester: Wiley, 1998. Anthony Giddens, *The Consequences of Modernity,* trans. *Le conseguenze della Modernità*, (Bologna: Il Mulino, 1994), 39 – 40. Ulrich Beck, Anthony Giddens and Scott Lash.

risk is culturally constructed as the expression of (and mode of response to) what different communities perceive as threat or danger.[46] Risk as the system of management that governs current management protocols, policies, infrastructures over the world is also a system that recognises as a threat what does not reflect or fit in its parameters of rationality, optimisation, calculation and control of the future). The idea that history is a linear evolution does not apply to the current landscape in light of a broader understanding of different histories (and geographies) past and future. The dangers of risk are not just what Beck identified as the collateral effects of the reflexive modernisation, or those featured in the "global catastrophic risk charts" but are much more pervasive: divisive rhetorics, fear of "the other", inequality and lack of solidarity and welfare — the effects of liberal democracy that govern through risk. As a product of calculus and probability, risk excludes all those voices that cannot be quantified, or at best it assumes that all can be quantified. It is a system of thought based on the projection of what the future might look like according to a present condition: if the present is one of inequality and prejudice, the future is likely to be so. It perpetrates the same biases in the future to the point that it becomes deterministic, generative or self-fulfilling,

On the other hand, risk has always been part of life, and people dealt (or coped) with it in many different ways. The supposed transition from fate to risk of early moderns, in a sense, is a "good" story that justifies how risks are managed today in liberal democracies, but it is not the only one. Think about the Egyptians irrigations system, based on the management of natural disasters, think of tsunami stones. Risk may not be the right framework to resolve the challenges of our time, but I think that it is a system of thought that we cannot avoid engaging with. As of today, risk is the primary framework for decision making when it comes to public health, conservation, the environment, terrorism and any think that counts.

It is for these reasons that an enquiry into the aesthetic dimension of risk may expose some of the pitfalls of risk as a system for decision making, perhaps even pointing to other forms of resilience. It is in the space between the various disciplines that are currently active in the management and governing of risk today that artistic engagement with risk operates and should be understood. Art is, or should be, a safe space for experimentation and for interpreting things through multiple (often complementary in not contradictory) perspectives. Through art, artists can be free to try out (or channel) everything they imagine and to see what happens. Yet the artistic realm, made of exhibitions, performances or participatory practices where publics encounter art, protects (or should protect) these publics

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Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order. Stanford: Stanford University Press, 1994.

[46] Douglas, *Ibidem*.

from being harmed. The encounter with art, its 'aesthetic' experience, might be disruptive, destabilising or disconcerting but it is never truly harmful. And when art engages with issues of broader concern, such as the imagination of our promised or threatened futures, then it can also provide a safe space for publics to reflect upon them.

Methodology

Despite the currency and urgency of the subject matter, embarking on an investigation of the visual vocabulary of risk might seem an overambitious — if not impossible — task for a PhD dissertation. What may at first seem too vast a field of enquiry can, I hope to demonstrate, be approached systematically through the parameters that I will outline below. The aim is to critically categorise the vast iconographic material that is produced to manage risk and to contextualise it in the broader context of art and visual culture.

The first parameter is to focus on methodologies and not on contents. Or better yet, to consider the two as inseparable, assuming that the study of rhetoric enables the understanding of meaning. For this reason, my research does not focus on specific kinds of risks, whether environmental, technological, economic, personal or existential, nor does it discuss risk in specific geographic areas.[47] Rather, it is structured around key anticipatory practices, or *methods* that I have identified from an extensive and long-reaching survey of the visual material produced as a part of risk management campaigns.[48] *Instructional warnings, how-to guides, pre-enactments, data driven visualisations* and *predictive modelling,* are key anticipatory features of the visual vocabulary of risk. By showing how we have been "taking care ahead of time", they provide, I believe, relevant insights into how different societies have grown accustomed to risk or have developed alternative methods for resilience. For this reason, they are instructive critical categorisations that can be used to explore the aesthetic dimension of risk.

Second, each of these anticipatory practices provides a framework for analysis of a broad range of cultural phenomena. Pre-enactments, for example, are used in anti-terrorism

[47] Existential Risk is the threat to human survival.
[48] This research began when I was working on the exhibition *Risk.*

training as well as in volcanic evacuations. Instructional warnings can vary from holding rails to spotting terrorists. Data visualisation can lead to mapping crime or predicting political unrest. Likewise, how-to-guides can claim to save us from everything from Armageddon to credit fraud. The focus on such methods has enabled me to identify three overarching trends in risk aesthetics: the instructional language of safety communication as seen in the emergency landing panels on every airplane seat (Figure 2);[49] the deployment of shock or reassurance to deter people from taking risks, which are familiar in many health warnings; and the aesthetic of large numbers (or probability), which pervade the diagnostic imagery of crime maps, financial graphs or early detection systems.

Thirdly, I was interested in the genealogy of such methods, and have followed a loosely chronological approach, seeking to find out how these 'anticipatory methods' have emerged and under which circumstances (or for which kind of risks) they have operated. I wanted to uncover their antecedents (if any) and their different impact in social, cultural and artistic contexts. This genealogical approach, however, is here identified not as a goal but as a means to interrogate, through various examples, the trans-temporal, future-focussed (but also transcultural and trans territorial) ambition of risk management as a project of evidence-based calculation. It aims at demonstrating that if the history of risk led to more economic stability, wealth and health for some countries in the world (through systems of damage control), it is also the same narrative that has legitimised exploitation, colonisation, extractionism and inequality through the myth of the adventurer, risk-taker and civiliser.

Moreover, I will draw attention to how this material forms part of a broader visual culture and is often appropriated in artistic practice. I will propose examples of how artworks and risk management techniques have engaged in constructive dialogue. I will examine art that, crucially, appropriates these techniques and negotiates different ways to understand them, proposing alternative ways to sense and deal with what is coming and to throw doubt on established models for resilience.

It is for pure convenience that this thesis engages mainly with material produced in Anglo-America and Europe, for it is only a starting point for further interrogating the mismatching visual vocabulary of risk under a more culturally situated perspective that confronts (and challenges) the principles of universality, standardisation and objectivity that regulate risk communication today. Far from writing an orthodox art history of the visual vocabulary of risk, therefore, I have instead sought to trace a framework for future

[49] The reference here to emergency landing panels is used just as a mere example and will not be directedly addressed in this dissertation. For an extensive discussion on the subject see Elias Modig, *Design for Impact : Airline Safety Cards*, (London: Laurence King, 2002).

interdisciplinary research operating at the margins between art history, design, and risk. Under this perspective, the analysis of how risks are constructed in Anglo-America and Europe is only a starting point for comparing the consequences of asymmetrical exchange between cultures and where decentring the focus becomes a necessary continuation of future research.

The following pages will be devoted to providing a short overview of each individual chapter in this dissertation.

Chapter 1 engages with the principal literature in the field of risk studies, arguing that in wanting to pre-empt potential disasters, the diagnosis of risk requires an effort of imagination. This paves the way towards recognising the importance of fictional, speculative or creative practices (science fiction, art, design) as valuable tools that enable us to cope, perceive or manage risk. If risk is an abstract idea, I argue, it will need to be imagined and also materialised through management techniques such as warning, drills, assessments or other protocols. These techniques are adopted to 'govern risk' through pragmatic and possibly unbiased protocols (as in a realist approach); however, as studies in critical theory and governmentality have shown, the genuine attempt to reduce risk, in fact, often produces it. In conclusion, I will argue that risks are both fictional and real — that is, they exist as both abstract ideas and as practical techniques.

In Chapter 2, I will argue that in light of this double nature, risk has an 'aesthetic dimension' where we interface the artefacts or lexicon of risk and reflect on their theoretical nature without being harmed. The aesthetic, I maintain, is a useful framework for the cross-disciplinary study of risk; one that looks at its representation and communication as a part of a meta-language of which art and visual culture are a part. In reflecting on some of the concepts and works in the exhibition *Risk*, moreover, I will review some of the possible ways that artists have engaged with risk, later defining the focus of this research not so much as about risk taking in art, but rather on how artistic practice shares the same visual vocabulary of risk and enables us the space to reflect on its social dimension.

Building on these theoretical considerations, the remaining chapters will be dedicated to their phenomenology, that is, to proving and testing out how the visual language of risk operates on an aesthetic level in visual culture. Chapters 3 to 6, therefore, focus on the genealogy and iconography of what I call the "instructional language of safety communication" through posters, trading cards, fallout booklets and artworks. Chapter 7 focusses on drills and pre-enactments, and Chapter 8 and 9 on the aesthetic of probability.

More specifically, in Chapter 3 I will examine how images (and posters) were designed to change behaviour (and save lives) at the beginning of the 20th Century, leading to the development of an instructional language of safety communication that presents risks as tractable and manageable. The chapter will analyse the allegories, instructions and warning messages featured in public health campaigns, prevention of accidents, insurance advertisement and other collectable ephemera produced in the UK and in the US between the 1920s and the 1930s. These first warning signs rarely deployed scary or disturbing imagery. Instead, they aimed at changing behaviours through encouragement, reassurance and instructions.

Chapter 4 focusses on the formal strategies and aesthetic responses that these risk messages deploy (or activate), and more generally on the use of shocking or reassuring images for the purposes of deterrence. The chapter compares exhortative messages promoting safe habits with the more disturbing imagery of health warnings. It particularly explores cigarette packaging as vehicles for risk messages. Given the disturbing imagery currently imposed on cigarette packages, it may be surprising to know that safety messages also made a frequent appearance on cigarette trading cards (which ceased to exist at the beginning of the Second World War). In this chapter I urge that this difference cannot simply be explained as part of our changed perception of the risks of smoking, but also by a widespread (and perhaps naïve) belief today that fear and shock are the best tactics with which to deter people. By reviewing several examples of disturbing and reassuring imagery in warnings and art, and by comparing literature from psychology, social sciences and critical theory, I argue that the dialectic between fear and reassurance, is a reoccurring trend in the communication of risk and one that, more importantly, requires constant renegotiation and re-evaluation.

Focussing on how we prepare for disasters, and following a loosely chronological perspective, Chapter 5 will discuss how the instructional language also permeated fallout booklets in the Cold War period (UK, US) and, later, survivalist guides. I will critically investigate how these publications dealt with the threats of annihilation by proposing how-to techniques to survive. Converging in the emergent, ubiquitous proliferation of self-help literature, I will argue that 'how-to' guides respond to our worries and need for reassurance by presenting future scenarios as manageable, but their relation to evidence and an effective ability to 'save' cannot always be trusted.

Chapter 6, situates the influence of the instructional language in artistic practice through the lens of Francis Alÿs's painted works. Placing Alÿs's practice in relation to Safety First cigarette trading cards, but also the imaginary of Tarot, Surrealism, Mexican advertisement and Indian school posters, it argues that the instructional style of safety communication

inherits and perpetrates the iconography of traditional cautionary tales. By adopting the same style, however, Alÿs does not merely counsel caution, but also points to other forms of resilience and existence. Protected by the safety net of his own art, he can get away with accidents and even embrace their experimental power; however, when he turns our attention to Mexico, the land from which most of these works took inspiration, it becomes clear that accidents are simply part of the everyday, and thus people simply learn to coexist with risk on a daily basis through their proverbial attitude to *valemeadrismo*.

Passing from instruction to rehearsal, Chapter 7 adopts a similar methodology in discussing pre-enactments. It focusses on the importance of performative practices to both *exercise* and *exorcise* risk and examines Rosa Barba's film *The Empirical Effect*, which was mostly filmed in the old Vesuvius observatory and features scenes for an eruption evacuation drill. Once again, the artwork is a lens, or a safe space, through which one can understand the poetics of resilience in a city that is both confronted by the cyclical threat of eruption and gains part of its symbolic strength and identity from the very mountain that has and can destroy it. As these two examples demonstrate, there is something about the encounter with risk that these artworks generate: through them we can sense — even face — what it means to live with danger (or to be under threat) while remaining safe. In this aesthetic dimension we engage with the sense of anticipation that the awareness of future disasters entails and how it affects life.

The last two chapters will focus on the numerical and probabilistic nature of risk. By focussing on the importance of predictive monitoring and on the statistics for the calculus of risk, Chapter 8 is an attempt to discusses how data-driven risk representation technologies are used as diagnostics to make decisions about the future. By considering examples from different periods in history it will show how numerical patterns (of probability) have been employed diversely as aids for informed decision making and the estimation of risk. I will argue that the trust we give to these diagnostic images is due to three important factors. First, they are *data driven*, thus capitalising on the faith that we give to numbers. Second, they are *structural* — that is, they are concerned with the relation between those numbers, small and large. And, third, they are *predictive* in the sense that they enable us to compare data from different periods and their possible reoccurrences. These factors define the parameters of what I call the aesthetic of probability: they mathematically elaborate present data in order to visualise "probable" futures.

Finally, Chapter 9 focusses on the aesthetic of probability in artistic practices by exploring artworks that are, in different forms, *data driven*, *structural* and *predictive*. By examining artworks by Marcel Duchamp, John Cage, Emma Kunz, Channa Horwitz, Troika and Hito Steyerl it explores how these artists have appropriated computational methods to

play with chance, probability and determinism. Regardless of the scepticism, faith, curiosity or criticism these artists might have had towards the predictive ability of probability calculations, these artworks engage with the visual vocabulary of mathematics and computation in non-utilitarian terms. Playing with the trust (or faith) that many of us have towards structures, modelling and data, they point to the ambivalent risks and opportunities that the dominance of data-driven and utilitarian decision making poses to humanity and to the imagination. The gift that art has to offer to our collective understanding of risk, I suggest in the conclusion, is its ability to cultivate safe places where spontaneous, non-utilitarian experimentation is still possible and were we can nurture new models for possible realities.

1 CHAPTER. What is Risk?

1.1 Introduction

This chapter conceptualises risk as an uncertainty reduction process that is based on probability calculations. It frames the concept of risk through the classic literature of risk studies: the histories and anthropologies of risk (Bernstein, Douglas), the risk society (Beck, Giddens), Governmentality theories (Foucault), and the social amplification of risk (Slovic). Risk studies, I will point out, struggle with an unsolvable dilemma: are risks real? In engaging with this debate, I will suggest that risk is both an abstract idea and a concrete reality where we encounter possible perils through the measures and techniques designed to manage them. The possibility of risks, then, manifests itself as a faculty of the imagination but also through its infrastructures and representations; pragmatic calculations, imagination and emotions are equally involved in the perception of risks and, consequently, their assessment and management. I will argue that the cultivation of fear or reassurance through images in risk communication, media campaigns, and cultural artefacts, enters the collective imagination and has an impact on how risks are perceived.

FIGURE 3 *THE FRAUDS OF LONDON, DISPLAYING THE NUMEROUS AND DARING CHEATS AND ROBBERIES PRACTISED UPON THE STRANGER AND THE UNWARY*, 1829.

1.2 What is risk?

> There is no such thing as risk in reality. Risk is a way — or rather a set of different ways — of ordering reality, of rendering it into a calculable form […] the significance of risk does not lie in risk itself, but on what risk gets attached to.[50]

Risk is not something tangible, but a form of knowledge that we produce by attempting to recognise and quantify what might happen in the future. Risk management often defines risk through its contrast with hazard, a word that for many sounds like its exact synonym. While a hazard is a potential source of harm, risk is the possibility, high or low, that such hazard may genuinely cause harm to someone or something. If hazards are potential causes of harm irrespectively of our perception; risk begins when we see them coming: it does not occur as the external source of adversities (hazards, dangers), but as their *possibility.*[51] The knowledge of risk involves calculations, perceptions and emotions, but also engages the imagination: it is a matter of perspectives. For example, in *The Frauds of London*, a pamphlet published in London in 1829, a gentleman is pictured as walking confidently through the city, unaware of the shoplifter lurking behind him (Figure 3).[52] Observing the scene from a different perspective, however, the reader of the pamphlet, perhaps one of the many visitors that the city attracted at the time, would have been warned about the risk and become more attentive. Similarly, today we might be in danger if we walk on the street unaware of its perils, or be at risk if we are aware of what can potentially cause harm and we act accordingly, merely reminded by road signs of the risks that surround us.

Risk, however, can also have a positive connotation: for example, one can take a chance at the betting table, or take calculated risks by betting only the money that they can afford to lose. This possibility of a loss can become an opportunity. "The modern 'risk paradox', writes sociologist Jens O Zinn "combines two desires in the notion of risk: to prevent and minimise risk and the insight that some advantages are only achievable when taking risks".[53] Risk is, on the one hand, an expanding management apparatus created in

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[50] Michael Dean, "Risk, Calculable and Incalculable", in *Risk and Sociocultural Theory: New Directions and Perspectives*, ed. Deborah Lupton (Cambridge: Cambridge University Press, 1999), 131.
[51] Stanley Kaplan and John B. Garrick, "On the Quantitative Definition of Risk", *Risk Analysis,* 1(1981): 11-27. 1981. Accessed 30 June 2019, doi:10.1111/j.1539-6924.1981.tb01350.x.
[52] *The Frauds of London, Displaying the Numerous and Daring Cheats and Robberies Practised upon the Stranger and the Unwary: The Whole Consisting of Facts Derived from the Most Authentic Sources; and Being the Most Complete Account of Metropolitan Villany Ever Presented to the Public Eye. By an Old Bow Street officer.* (London: William Cole, 1829).
[53] Jens O. Zinn, "The meaning of risk-taking – key concepts and dimensions", *Journal of Risk Research*, 22.1(2019): 1-15, accessed 30 June 2019, DOI: 10.1080/13669877.2017.1351465

response to local and global threats, on the other, a synonym of gamble, bravery or thrill, a mix of fear and attraction, an impulse to push behind one's limits. If risk management is funded precisely on anticipating potential disasters and prepare for them, in current language 'to risk something' means putting it at stake, like in an investment for greater economic reward or risking one life to realise great feats.

In *Risk, Uncertainty and Profit* (1921) economist Frank H. Knight (1885–1972) established the economic definition of risk as opposed to uncertainty: "risk is present when future events occur with measurable probability, uncertainty is present when the likelihood of future events is indefinite or incalculable".[54] For Knight, the calculus of probability regulates (or calibrates) the relation between risk and uncertainty and enables the maximization of profits. Probability for him provided the knowledge necessary to predict the volatility of the market. Since his writing, however, the reliance on probability for managing risk has grown massively beyond the field of economics: with the developments of statistical sciences, not just numbers but social and natural risks began to be described in terms of probabilities and percentages.[55] Based on statistical figures of past accidents or the physical characteristics of the road itself (e.g. its traffic, shape), we estimate that accidents are not just possible, but probable and we can even give a number to such estimations. Statistics use figures of past occurrences in order to estimate the likelihood of future occurrences by employing mathematical equations and graphic presentations. As such the future is presented as tractable and controllable.

Historian of science Ian Hacking has argued that the advent of risk is a consequence of the emergence of chance, uncertainty and instability as the drivers of nature against the ruling forces of fate of antiquity.[56] Probability and science have enabled societies to navigate this 'uncertain' future by devising tools and calculations to reduce uncontrollable phenomena into events predictable with a certain degree of approximation. Probability calculations, predictive technologies and pre-emptive measures have reduced damages and minimised risk. At the same time, and as a consequence of this, the word uncertainty has mostly acquired a negative connotation. Risk has reconceptualised the future as a territory for predictions and forecasting at the expense of anything that escapes its calculative logic.

"Risk is based on a subtle combination of knowledge and uncertainty" writes philosopher

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[54] Frank H. Knight, *Risk, Uncertainty and Profit*. (Boston: Houghton Mifflin Company, 1921).
[55] Risk is the probability that a particular adverse event occurs during a stated period of time or results from a particular challenge. As a probability in the sense of statistical theory risk obeys all the formal laws of combining probabilities.
[56] Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas About Probability*, (Cambridge: Cambridge University Press, 2006). See also Ian Hacking, *The Taming of Chance*, (Cambridge: Cambridge University Press, 2008).

Sven Ove Hasson "when there is risk, there must be something that is unknown (…) hence there must be uncertainty (…), but for this uncertainty to constitute a risk, something must be known about it".[57] Risk, then, is an uncertainty-reduction process, a diagnostic method that we use to make decisions about the future. It is not just positive, nor just harmful, as such diagnosis allows us to see dangers and minimise their potential effects to the point that they can become opportunities. The positive and negative nature of risk are, in fact, inseparable and complementary and for me no word better than calibration describes the fragility and importance of such a difficult balance between danger and opportunity.

One can find in Ancient Egypt an example of this very process. As Farid S. Atya tells us, survival in the Nile region was hugely reliant on the river's annual floods that, although potentially catastrophic, could be managed by constructing irrigation channels, responsible for transforming the surrounding desert into a fertile oasis. Thanks to a specialized tide-monitoring system, Egyptian priests were able to predict the floods and whether they would be disastrous or favourable. Priests had sole access to the Nilometer, a special chamber built in proximity to the river with a marked column at its centre (Figure 4). When the river water would flow into the room, the column served as a meter, allowing the water level to be compared to the markings, which represented levels reached during previous years. Moreover, the various marks corresponded to a scale that varied from abundance to hunger. By reading this rudimentary yet ingenious device, Egyptian priests were able to advise the population about what they should expect as well as determine taxes for the following year. Their predictive ability must have seemed like a supernatural power to the population, but it was in fact a form of pre-emptive monitoring (see chap.8). Moreover, it is because of their ability to pre-empt the disastrous effects of floods and turn them into an advantage against the extremely dry climate, that the Egyptians could not only survive, but thrive in an otherwise hostile environment.[58]

Risk is often considered a modern phenomenon.[59] Nevertheless, it is a little more than ironic that Egypt's prosperity was dependent on the propitious management of the uncertainties of annual floods in such a way that the otherwise disastrous effects were exploited to ensure

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[57] Sven Ove Hansson, "Philosophical Perspectives on Risk". *Techné: Research in Philosophy and Technology*, 8.1 (2004):10-35.

[58] Farid S. Atiya, *Ancient Egypt*, (Giza: Farid Atiya Press, 2006), 23. A similar device, the Tsunami stones, have less productive function, yet are important memorials that warn towards the future. Another, less enigmatic device, the *Riskometer,* is a tool commonly used today in financial risk management to ensure continuous growth of investment. It advises that an ideal scenario is one with a moderate level of risk: echoing an old say nothing ventured nothing gained

[59] Ulrich Beck, Anthony Giddens and Scott Lash, *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*, (Stanford: Stanford University Press, 1994). See also Peter Bernstein, *Against the Gods: the Remarkable Story of Risk,* (New York: John Wiley and Sons, 1998).

rich harvests. This example shows that similar attempts to manage disasters using rudimentary probability calculations have been occurring since the earliest historical times, even if framed differently. Risk entails the awareness that uncertainty is a central part of the human experience, while also implying that uncertainty can be transformed into a *manageable* risk.

FIGURE 4 MEASURING SHAFT OF THE NILOMETER, RODA ISLAND, CAIRO (715 AD CIRCA).

1.3 Risk, Modernity and the Anthropocene

Tracing the origins of risk and its development in relation to ideas of fate and fortune, I will point out that scientific discoveries and the notion of probability have changed humanity's awareness to risks and confidence in devising effective measures to minimize them. Yet, as sociologist Ulrich Beck argued, this transformation has not necessarily reduced uncertainty, but rather might have produced more risks.

The term risk appears in European context somewhat recently. One etymological thread finds the term to have been derived from the Arabic *risq* – "riches" or "good fortune". Its semantic evolution could have been an attempt to replace the concept of chance with one signifying manmade fortune. In fact, in the German since the sixteenth century *Rysigo* was being used as a technical business term, meaning "to dare, to undertake, enterprise, hope for economic success". The early Italian *risicare* (to dare), also means to value the unexpected,

challenge pre-defined laws and bet on success for the greater good.[60] Risk begins when unpredicted fatalities are interpreted through rational analysis and calculation techniques, assuming the human capacity of understanding and partially governing the forces of nature.[61] During the Middle Ages causes of dangers and catastrophes were attributed to supernatural forces: calamities where seen as God's punishment, or as the hand of the devil; to avoid them people would rely on complex systems of beliefs .[62] The prescriptions of what to do in case of an emergency mostly consisted of rituals or actions to be performed with propitiatory intentions. People would cope with catastrophes by taking part in processions to sacred places, keeping off certain people, animals or places, and rely on amulets.[63]

The history of risk began with the first contracts of maritime insurance at the time of the commercial revolution (1275-1375), stipulated by shipping merchants in Italy to ensure that, if their cargo would not reach destination due to the dangerous journey at sea, they would be compensated.[64] Despite the threats posed by navigation, merchants of the time could rely on insurance companies to contain possible damages caused by external factors (i.e., independent from their responsibility) like tempests or pirates' attacks. With each party contributing a small amount of cash, the unfortunate who would eventually lose their cargo could be compensated. The insurance system, at the time as is the case today, relied on mutual support but also on a stable society that could guarantee those contracts to be honoured. In this way, both merchants and insurance companies could ensure good fortune for their business. In medieval insurance contracts, risks were assessed, quantified and indemnified, like today, even though statistics and probability calculus where very basic in comparison.

According to Peter Bernstein, risk is 'the revolutionary idea that defines the boundary between modern times and the past'.[65] For him, risk is closely intertwined with modern science and the political structures of the early modern period (1500-1800) that have helped

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[60] For this interpretation of the etymology of 'risk' see Peter Bernstein, *Against the Gods*; see also for an expanded discussion Terje Aven, *Risk, Surprises and Black Swans: Fundamental Ideas and Concepts in Risk*, (Routledge: New York, 2014), 20-22.
[61] For the Arabic see: Ian Wilkinson, *Risk, Vulnerability and Everyday Life*, (New York: Routledge, 2010), 17; for the German etymology see: Rolf Skjong, *DNV*, February 25th 2005, accessed 30 June 2019, http: research.dnv.com/skj/papers/etymology-of-risk.pdf; for the general etymology of risk see also: Deborah Lupton, *Il Rischio*, (Bologna: Il Mulino, 2003), 13 and Preston B. Cline, "The etymology of risk." *Unpublished manuscript.* (2004). Accessed January 21 2020. http://bit.ly/tcQ2S7
[62] Henry O Taylor, *The Medieval Mind: A History of the Development of Thought and Emotion in the Middle Ages*, (Garfield Heights, OH : Duke Classics, 2014), 539.
[63] Robert Muchembled, *Culture Populaire et Culture des élites dans la France Modern*, (Paris: Flammarion, 1978), 55-59.
[64] Lupton, *Il Rischio*, 17.
[65] Bernstein, *Against the Gods*, 1.

European societies calculate and explain natural phenomena as well as, in some cases, predict their future occurrences. For Antony Giddens risk is a product of the 'age of rationality': 'Risk has replaced what in ancient time we would attribute to fortune and fatality',[66] suggesting that the introduction of risk calculations has had enormous implications on the ways in which the future is designed and 'sculpted' today. For these scholars, risk is the effect of a pragmatic approach towards uncertainties, which ceases to see the future as the unavoidable sequence of events transcending the human will, but rather as an history yet to be written, governed by uncertainty but also probability and full of exploitable possibilities.[67] Although several historians have criticised these scholars clear separation between a rational and irrational world (the Nilometer being a clear example) risk's entanglement with scientific and mathematical innovations is clear. If the main characteristic of modernity is the trust in scientific investigation and rationality as means to know the world, the confidence in analytical tools to calculate and minimise risk is undeniably connected with norms, attitudes and practices of modernity. With modern European nations facing phenomena such as urbanization and industrialization, risks and threats have become important parts of the organization of the State. Governments concerned with famine, epidemics, wars, and social instability relied on the opinion of 'moral' and physical scientists based on the observations of material and social phenomena. [68] Risk would define the political agendas of late modern governments concerned with wealth, health and social well-being, and become an integral part of modern social policy.

The 1960s brought radical transformations in the understanding and management of risk, which sociologists Ulrich Beck and Anthony Giddens have described as "reflexive modernisation"; [69] a process of scientific, technological and economic advancements, but also of higher "man-made" risks that cannot be controlled. Beck used the expression "living on the volcano of civilisation" to define a societal condition where risk plays a central role. [70] His "risk society" is one which is overwhelmed by natural and anthropogenic risks and where scientific advancements have not necessarily made people feel safer but rather the opposite. The threats posed by nuclear energy, genetically modified food, or HIV are for Beck of a different scale than ever before — not only do we see them coming but they are global, and with long term consequences. In his diagnosis, the domain of uncertainties has

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[66] Anthony Giddens, *The Consequences of Modernity,* trans. *Le conseguenze della Modernità*, (Bologna: Il Mulino, 1994), 39 – 40.
[67] Hacking, *The Emergence of Probability* and *The Taming of Chance*.
[68] The enthusiasm for scientific methods and mathematics was so widespread that also social problems were measured by statistics and calculation of probability by so called 'moral scientists'. See Lupton, *Il Rischio*,12.
[69] Beck, *Reflexive Modernization.*
[70] *Ibidem*, 17.

expanded together with the one of risk knowledge: pragmatism has not resolved uncertainty.

Beck's assessment of the risk society does not seem too distant from the present condition. Those living in the wealthiest countries are used to identify risks before they happen, resorting to systems of institutional prevention. They go to hospital to check that they are not ill, build barriers to prevent floods, do evacuation tests to be ready in case of fire. They can count on institutions and social structures which allow them to use such facilities; and have police to protect them from the dangers of the streets. Still their fears have not dissipated. If governments have won battles against cholera or increased life span, people are still worried about their everyday life: we are afraid of cancer, losing jobs, being the victims of robbery, or worse a terrorist attack. All of this whilst the poorest regions in the world are already experiencing the effects of human provoked catastrophes in the shape of floods, land-slides and other so called "natural disasters".

The constant monitoring of human behaviour and its environment has also affected faith in the judgment of science and the capability for experts to contain risks. Not just the population is confronted with experts' discordant opinions (as for example in regards to vaccinations), but also governments and institutions confront risks according to different criteria (e.g., by either abolishing or developing nuclear energy).[71] Marketing strategies, moreover, capitalise on people's fear of failure, selling insurance premiums, loans or safety devices designed to reassure them in case of the worst-case scenario.

Furthermore, in what we now call the Anthropocene,[72] the risks that Beck identified have reached even a larger scale, with institutions and research centres focussing on preventing human annihilation via systematic, sustained research. At Cambridge University, for example, Astronomer Martin Rees funded the interdisciplinary Centre for the Study of Existential Risk to conduct research and raise awareness on humanity's most extreme threats: technological, biological or environmental risks as much as the emerging field of artificial intelligence. In synergy with this initiative philosopher Nick Bostrom, the founder of the Future of Humanity Institute, wrote that "We're like children playing with a bomb",[73] warning about the necessity of a risk assessment process that consciously monitors AI

[71] Nuclear energy encapsulates this scenario well: a potent manmade weapon menacing the planet with timeless and global disastrous effects (explosions, radioactivity, radioactive waste); at the same time, a 'clean', resourceful source of energy.
[72] I here use the word Anthropocene as widely accepted in the humanities and science, bearing in mind its contentious nature and critical terms such as Capitalocene and Plantationcene. For further discussion on this subject see Donna Haraway, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin", *Environmental Humanities*, 6 (2015):159-165, accessed 15 April 2019, https://environmentalhumanities.org/arch/vol6/6.7.pdf.
[73] Nick Bostrom, *Superintelligence : Paths, Dangers, Strategies* (Oxford: Oxford University Press, 2014), Chapter 8.

implementation and application with respect for the human species. Human annihilation has never been so real, although we don't necessarily see it, as it is projected beyond our lifespan, in years to come.[74] As I revise this thesis, moreover, activists from the climate change movement Extinction Rebellion are occupying the streets of London. Their declaration of "climate emergency" is gaining mainstream support suggesting that a message based on urgency and emphatic catastrophism might be the most effective tactic to bring the possible futures into the present preoccupation.

From this scenario, it's evident that more problems arise beyond the development of risk assessments and analysis as pragmatic methods for improving life: the perception that scientific knowledge might not be objective but a social construct, the diffidence about government and institutions making correct and un-biased decisions; the awareness of insidious marketing strategies in a capitalistic society.[75] Let us consider all these aspects in more detail.

1.4 Sociology of Risk: Are Risks Real?

Against the supposed pragmatism (or realism) of risk analyses and management, the following section will assess the contributions of Social Constructivism and Governmentality. There is no clear consensus in risk studies regarding whether risks are real or not. Based on data analysis and probability calculations, the so-called realist approach assumes that risks are real and addresses them with pragmatism. Risk Management, for example, uses a 'realist approach' to tackle risks with the utmost objectivity which is based on technical-scientific literature from various disciplines including engineering, statistics, mathematics, geology, psychology and economics. Scholars from the Social Constructionists orientation, on the other hand, focus on how risks are socially constructed

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[74] King, David, Daniel Schrag, Zhou Dadi, Qi Ye, and Arunabha Ghosh, *Climate change: a risk assessment*, (report, Centre for Science and Policy, 2017), accessed 20 January 2020, http://stg-wedocs.unep.org/handle/20.500.11822/18715?show=full. In this report King and co-authors argued that the risks of climate change should be managed in the same way as risks to national security or public health. However, in the years since its publication, the response to the report has been muted and slow. See UCL Policy Commission on Communicating Climate Science, "Developing Better Climate Mitigation Policies: Challenging current climate change risk assessment approaches" (report, 1 July 2018), accessed 20 January 2020, https://www.ucl.ac.uk/public-policy/sites/public-policy/files/risk_workshop_report_final.pdf.

[75] For the perception of science in the post-modern world in the context of risk, see Barry Smart, *Postmodernity*, (London: Routledge, 1999) and Lupton, *Il Rischio*; for scientific knowledge as a social construct, see Mary Douglas, *Risk and Blame*, (London : Routledge, 2005) and Paul Slovic, *The Perception of Risk,* (London: Hearthscan, 2000); for diffidence about marketing strategies see Wilkinson, *Risk, Vulnerability and Everyday Life*, 40.

and entangled with political, cultural and social factors. For them, there is no such thing as an objective risk.[76]

A realist risk analysis relies on techno-scientific expertise combined with cognitive methods to make informed decisions. In the case of natural disasters, for example, the assessment of risk combines physical and geographical information with the history and frequency of past occurrences. Advanced technologies monitor impending disasters (e.g., satellites for identifying the emergence of tornados) and attempt to predict them within a certain margin of anticipation to allow for timely alerts. Disaster management strategies, moreover, must take into account other human factors which they attempt to estimate by using cognitive-behavioural methods such as psychometric tests. By combining data from these different sources to estimate probabilities, an analyst can measure risk, and, with the help of emergency services, may successfully save lives. However, even the most accurate risk analysis does not guarantee safety for people, as its success depends on various factors beyond one's control. What happens, when experts send the alert, but the population or the authorities do not listen to their advice?

In 1902 in St Pierre, the capital of Martinique, the authorities ignored the experts' warnings of an impending volcanic eruption due to the imminent elections scheduled for the same days thus not evacuating the population. The explosion destroyed the town killing 25,000 people who listened to their misleading leaders. All perished like in Peter Bruegel (1525-1569) famous painting the *Blind who Leads the Blind* (1568) and the only survivor was a man imprisoned in an isolation cell. This episode, poetically recounted in Warner Herzog black and white documentary, *La Soufriere: the portrait of an inevitable catastrophe that did not take place, (1977)*[77] is a striking example of how political, natural, and fortuitous factors play a part in how risks are perceived and managed. The film, moreover, transposes this proverbial example of misjudgement into a Kantian imaginary of man vs nature (what the philosopher called "dynamic sublime"),[78] where an aura of fatalistic heroism imbues the relations of victims and decision-makers as well as the politics, perceptions, and beliefs that each of them embodies.

As this example shows, policymakers and authorities have a considerable responsibility in matters of risk. In some cases, people under or overestimate risks according to irrational

[76] For the distinction between Realism and Constructivism, see Lupton, *Il Rischio*, 40.
[77] *La Soufriere: the portrait of an inevitable catastrophe that did not take place,* directed by Werner Herzog (West Germany: Werner Herzog Filmproduktion, 1977), documentary.
[78] Kant, *Critique of the Power of Judgment.*

judgments,[79] in others, the damages produced by contingency responses can exceed the ones of the original risk. The line is thin, between underestimating and overestimating risk and every individual perceives risk differently. The difference of responses to natural disasters, moreover, is minimum in comparison with man-made risks. If natural disasters are somehow 'self-explanatory' and to a certain extent objective risks, a realist risk analysis becomes much more complicated with other threats, such as terrorism or nuclear disasters that are very much the effect of power relations between humans.

In two pioneering publications, *Purity and Danger* and *Risk and Blame*, anthropologist Mary Douglas and political scientist Aaron Wildavsky suggested that risks are the products of social factors.[80] They did not limit their critique of the realist approach to merely being socially biased, but rather argued that different communities and authoritative systems produce risks for the protection of their identity. Risk, for Douglas, is what a community identifies as a dangerous element of instability and, for this reason, it will be different from one community to another. Germinating from their contributions, scholars from the constructionist approach focus on how risks reflect different systems of beliefs and power dynamics. Rather than approaching risks pragmatically and attempting to manage them, they deconstruct the socio-political and symbolic function that risk occupies, questioning how it protects identities and systems of power. Similar reflections apply today to the understanding of individual risk-taking, which Zinn has recently identified as being linked to the formation, affirmation, or protection of one's identity within a community or social context.[81]

An even more radical criticism to objective risk analysis has developed from the writings of Michael Foucault about power relations.[82] Known as Governmentality studies, these scholars assume that risk is nothing but what we see as a risk, pointing to the fact that people can see risks everywhere and can also invent them.[83] Writers of the Governmentality orientation study strategies where risk constructs and organises social life, especially through political initiatives and marketing strategies. According to these writers, the increasing reference to risk in government legislation and public campaigns, as well as

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[79] One fact that has often been criticised is that risk experts would stigmatize people's behaviour as irrational.
[80] Douglas, *Risk and Blame*, 3-83 and 235-271. Mary Douglas and Aaron Wildavsky, *Risk and culture an essay on the selection of technological and environmental dangers*, (Berkeley: University of California Press, 1982) 1-15,186–198.
[81] Jens O. Zinn, "The meaning of risk-taking".
[82]Michel Foucault, "The Subject and Power", *Michel Foucault: Beyond Structuralism and Hermeneutics*, eds. Hubert L. Dreyfus and Paul Rabinow, (Chicago: University of Chicago Press, 1982), 208-227.
[83] Graham Burkell, Colin Gordon and Peter Miller, *The Foucault Effect, Studies in Governmentality*, (London: Harvester Wheatsheaf, 1991).

administrative structures, is used by governments as a way to influence human behaviour. To say that someone (or something) is dangerous leads people to guard themselves against that potential harm. In this way, the governing of risk retains the concepts of individual responsibility and freedom of choice, which are the basis of liberal democracies, but also justifies the state intervention in regulating and modifying individual behaviour. People need to be aware of particular risks, and then they will avoid them for their own safety.

Foucault famously stated that the exercise of power consists of "*conduire des conduites et à aménager la probabilité*", which he translated as "the exercise of power consists in guiding the possibility of conduct and putting in order the possible outcome".[84] Foucault's "conduit to conduct" principle is striking if we observe that leaders have justified entering into wars with the need to neutralize risks: the risk of terrorism (Afghanistan), the threat of countries producing weapons of mass destruction (Iraq). In those contexts, liberal governments collaborated with the media and the local administration to present the risk as something threatening every individual and community and to proclaim that it was everyone's responsibility to fight against it: a terrorist can be anyone. More recently, a similar strategy has been used in political campaigning across Europe presenting the immigrant, or the refugee as a threat for countries' safety and economic stability. These strategies cultivate risk and use it to give a recognisable escape route for social anxiety and governmental deficiencies. They use risk as a negative power for limiting and discipling individuals. On the other hand, however, Foucault did not exclude for the idea of governmentality to produce a positive bio-power, which creates realities through commonly used practices and biological knowledge and which is mitigated through the concept of risk (such as in the case of epidemics control). In the debate about the objective existence of risk, the position of Governmentality analysis, it that human points of view produce risks and create social consensus or dissent around their understanding. It does not mean that they deny the existence of "real" dangers such as earthquakes, tsunamis or pandemic diseases; instead, they believe that those are considered risks only in the presence of a governing emergency strategy. If people do not perceive hazards as risks and do not implement policies or strategies to manage them, then hazards remain unpredictable nuisances, disasters, uncertainties or surprises.

In conclusion, regardless of whether one accepts risks as socially constructed (Social Constructionism) or believes that they are objective threats and dangers (Realism), infrastructures administering risk in society are not merely responding but are also

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[84] In French "conduire des conduit", Michel Foucault, *Dits et écrits* IV, (Paris: Gallimard, 1994), 237.

producing it. From disaster preparedness to financial projections, the envisioning of possible disaster scenarios and the invitation of actions to mitigate, or redistribute the risks are what create risk. If this statement is true, then its implications are radical as it accepts risk management to be potentially independent from the dangers it may address: we can fabricate risks, but they do not necessarily reflect real dangers. The current proliferation of warnings and disaster anticipation techniques, might not be the effect of facing the most dangerous times in history. Who would be able to compare the disastrous effects of our weapons of mass destruction to the ones of the ice age? Dangers have always existed, but we may just be more aware of what threatens us and how we should deal with it. The environmental effects of a capitalist exploitation of the planet, the overproduction of material goods and its waste, and the polluting effects of fossil fuels have reached today unprecedented heights, leading to alarming public declarations by scientists and other leading experts. In any case the future has become a territory to be governed; it is as visible as ever.

The emergence of risk may have introduced a Modern awareness of what can harm us. However, this awareness is based on assessments that are not always verifiable or accepted by decision makers, and in a society that uses risk as a tool for governing life the relation between real and false remains nebulous. Risks are situated in the realm of possibility, in a future that might never happen but nevertheless seems to be somewhat inevitable. I find Derrida's clarification of what is the real future useful,

> In general, I try to distinguish what one calls the future, and *l'avenir* (to come). The future is that which, tomorrow, later, next century — will be. There is a future, which is predictable, programmed, scheduled, foreseeable, but there is a future, *l'avenir* (to come), which refers to someone who comes, whose arrival is totally unexpected. For me, that is the real future: that which is totally unpredictable.[85]

More risk does not necessarily entail more safety, the future that comes as a surprise can strike at any moment: it is this irreconcilable intersection between the foreseeable future and the one that comes as a surprise that enables the existence of risk. Risk takes up a space in human existence which is at once an integral part of our experience of reality, but also takes us in a distinct speculative dimension of what if scenarios.

[85] Jacques Derrida, excerpt from the film Derrida (2002). In *Derrida* directed by Amy Ziering Kofman, Kirby Dick (France, USA: Cert NC, 2002), documentary.

1.5 Risk and the Imagination

The following paragraphs will focus on the relation between risk and the imagination: what I call "risk plotting potential". The assessment of risk, I shall demonstrate, often necessitates an exercise in imagination: the ability to see the potential in what is contingent. This cognitive operation involves logical and pragmatic thinking for the accurate assessment and management of risks, but can easily lead to the speculative territories of fantasy and fiction and become a formula for adventure fiction and disaster movies. As the boundaries between real and imagined risks are often blurred, risks are narratives we live by, surrounded by real and imagined disasters (in Chapter 4 I will also return to this theme).

If risks are, generally speaking, the dangers that we see coming, the assessment of risk requires a leap of imagination: the ability to spot what can potentially happen. Therefore, the separation between imaginary and factual information is particularly complicated in regards to risk (hence the just discussed debate about its realism). As we have seen, decisions under uncertainty can be based on probability calculations, but the perception of risk is always entangled with the workings of power relations as well as individual conditions and perceptions. Moreover, if there is risk there will always be a margin for uncertainty, a margin of error (see par. 1). This very margin of uncertainty makes risk a creative territory, a bottomless well of inventions, decisions and narratives.[86]

Let us consider a risk assessment, for example. A risk assessment is a template for a plot,

> What is the risk?
> Who is at risk?
> Why?
> Has this happened before (is there a history)?
> How can the risk be managed or lessened?

A risk assessor in an office will look around and try to spot any possible hazard: a wire in the floor, a bin in front of a fire exit, a water leakage, objects on top of a microwave, a picture not properly hanged. He or she will seek for logical conclusions and suggest possible actions. Mundane tips such as remove the bin, repair the leakage. A risk assessment, however, can potentially be an overwhelming exercise. What if the assessor is exceptionally meticulous and suggests there might be a bomb hidden in a bin, an imminent gun attack, or

[86] I will come back to this problem of judgment in greater detail when discussing-decision making under risk (rational - irrational decision making). The main point here is on the repercussions of misjudgement in the communication of risk.

that a paper clip might be used as a weapon? What if she resolves to attack her colleagues with that paper clip as a preventive measure? Clearly, it is essential in risk assessments to stick to the likelihood of risks, but such likelihood is also challenging to assess. Any risk plot will not be discarded until the future comes to confirm or dismiss what we estimate as possible. Today there are highly sophisticated foresight techniques, such as horizon scanning, that aim at reducing the quantity of unknown variability in fields such as health or business.[87] Even in those cases, however, it takes an effort of imagination to accept such data as real, or at least reliable.

To see the potential in the contingent is an exercise that requires a certain degree of imagination. One could write a basic novel or the plot for an action movie, by merely following the template of a risk assessment only slightly diverting for it for the sake of some originality and suspense. By just answering all the above questions, the risk assessment will generate the characters, the setting, and the action. It is this affinity with plotting and storytelling that makes risk the perfect tool for make-believe. The awareness of risk generates "narratives" which are not just attractive plots for fiction, films and art but reach us in many other forms such as news, radio, advertisements, political campaigns, posters.[88] One could discard them as mere propaganda, but still, the problem remains about the preoccupations and anxieties that come from the risks that we may face. Risks are potentially ubiquitous for they surround us with the potential at our doorstep: terrorists, inundations, volcanic eruptions, financial crises, thieves, traitors, contamination, dirt, pollution, illness, gamblers, heroes, war, death, enemies and anything one cares to name.

The proximities between risk and the imagination, therefore, deserve some further considerations. Let us, just for one moment, hypothesize that every risk that we perceive is potentially an imagined idea that we live by: not the apocalyptic fantasy that we experience in art, cinema and literature, but the real threat at our doorstep. Political agendas and movements, local communities, businesses and individuals, posters and signs reveal to us that threats exist and tell us how to deal with it (a process generally called as framing). Risk assessments, drills, simulations, manuals, alarms, barriers, first-aid and survival kits inhabit our real world, but they may also be the material manifestations of a very abstract idea. They could be the effects of our perception that something may go wrong or perhaps of an expert

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[87] According to the UK Government definition, horizon scanning is: "A systematic examination of information to identify potential threats, risks, emerging issues and opportunities, from the immediate up to 12 months away, allowing for better preparedness and the incorporation of mitigation and exploitation into communications and policy decision making processes". See: UK Government Communication Service. "Horizon-Scanning-Leaflet-Spring-2016". *gcs.civilservice.gov.uk*. Accessed 12 Dec 2019, https://gcs.civilservice.gov.uk/wp-content/uploads/2016/07/Horizon-Scanning-Leaflet-Spring-2016.pdf.

[88] See Gaspar Mairal, "Narratives of risk." *Journal of Risk Research* 11.1-2 (2008): 41-54.

assessment about the foreseeable future.

Risk, then, might seem like an immanent narrative that helps us make sense of our future. On the other hand, our futures make sense through the narratives we create. As surreal as it may seem, this last observation is not too absurd if we consider this real-life example. In 2011, inspired by the successful TV series *The Walking Dead*, the US publicly funded Centre for Disease Control and Prevention published a preparedness post on how to survive a Zombie invasion. The initiative was the effect of US general approach to preparedness that aims at 'empowering' the general public with the tools necessary to survive in a possible worst-case scenario (and not excessively relying on the emergency services). Some preparedness tips were packaged in a supernatural framework sparking several comments from the blog followers, including the one reported below,

> My friends and I were discussing the zombie apocalypse (…) and what would we do and how would we do it. It then dawned on us that what we were discussing would be extremely practical in real-world scenarios as well. That's when we began our journey into the world of prepping! [89]

This example shows how much of a leap of imagination is necessary to accept the existence of risk. Transposed into a fictional Zombie scenario, the need to be prepared becomes more real, and more than that, people watch zombie movies to learn how to act in real circumstances. Fantasies, narratives and images bridge the gap between expert and inexpert knowledge when preparedness is a priority for governments. It is a form of mutual support: fiction aliments the imaginative faculty necessary to perceive risks, but also provides the space for logical preparedness techniques to be exercised in preparation for real life. This mutual support, however can also have negative consequences: endless multiplications of potential disasters, the products that we buy to protect ourselves, the propaganda that we listen to. The risk template can turn into a neurotic complex that endlessly reiterates the various potentials of disasters.[90] If imagination makes danger more real, it is also true that the reality of a changing world under threat is nourishing our collective imaginary (or imagination) to the point that we live in a society haunted by worst case scenarios, real or imagined. Risk is a fertile territory for the imagination to cultivate possible realities.

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[89] Ali S. Khan and Centre of Disease Control and Prevention. "Preparedness 101: Zombie Apocalypse". *Public Health Matters Blog*. Posted on May 16, 2011. Accessed 12 December 2019, https://blogs.cdc.gov/publichealthmatters/2011/05/preparedness-101-zombie-apocalypse/

[90] I addressed this hypothesis in the workshop "Risk Assessment, a para artistic work", 17 of January 2013, Royal College of Art, London. See also Emily Candela, Francesca Cavallo and Maya Oppenheimer "Risk Assessment: A Para-Artistic Work" in *Critical Contemporary Culture Journal,* Issue IV PLAY (London: LSE Sociology Department, London School of Economics, 2013).

Zygmunt Bauman described this emotional state, of being haunted by imagined or real worst-case scenarios, as "derivative" fear and wrote,

> Derivative fear is a steady frame of mind that is best described as the sentiment susceptible to danger; a feeling of insecurity (the world is full of dangers that may strike at any time with little or no warning) and vulnerability (in the event of the danger striking there will be little if any chance to escape).[91]

Bauman's derivative fear is not the instinctive fear that also animals possess, but one of a different kind, socially and culturally induced, that, "even in the absence of a genuine threat, resorts to the responses proper to a point blank meeting with danger".[92] The socially induced insecurity that Bauman describes, one typical again of liberal societies, resembles a prolonged state of alert, a form of stress that triggers our brain's alarm and compels us to live in a state of constant expectation. This state comes from the awareness (or imagination) of possible dangers. From our position of privileged advanced societies, we can even discard them as fantasies or propaganda, and yet the problem remains: we are saturated by the preoccupations and anxieties that arise from the risks we might have to face. Not just images of disasters feed our contemporary catastrophe awareness but risk messages remind us of the impending dangers coming our way, micro and macro disasters are rehearsed for preventive reasons, forecasting techniques condition our decisions in the here and now. The dangers we worry about, however, may never happen, yet hang over us as imminent: perceived, assessed, prevented, indemnified, but not necessarily "to come".[93]

1.6 Risk and Emotions

If, as just discussed, the imagination makes risks real, it is also true that the reality of risk nourishes not just the imagination, but also feelings and emotions. In this section I will discuss the role of emotions in risk communication and the Social Amplification of Risk Framework (SARF). How are emotions deployed in communicating risk? What is the role of the authorities in managing public perceptions and fears? And what kind of challenges do they face? I shall conclude by assessing how the perception of risk is essentially a process that happens through mediation. That is through the encounter with visual material, narratives and artefacts that represent risks as visible and often manageable. It can involve

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[91] Zygmunt Bauman, *Liquid Life*, (Cambridge: Polity Press, 2005), 3. For more discussion on free-floating fear see Frank Furedi, *Culture of fear*, (London: Continuum, 2006). Verso 2017).
[92] *Idem.*
[93] Derrida, see note 37.

fear and preoccupations but also the reassurance of expertise.

Institutions and policy makers attempt to pragmatically communicate risk. As critical studies on risk have pointed out, risk is often exploited for political reasons and as a powerful tool for mobilizing societies against each other, yet, in many cases fear is exactly what authorities aim to avoid, censure and silence. "The only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance", Roosevelt famously proclaimed in his exhortative address to an American population discouraged by the Great Depression.[94] Today most of institutional risk communication capitalises on this approach, suggesting that risks have to be communicated correctly - a sense of urgency must instil the public but panic and fear must be avoided. On the one hand governments take responsibility for educating people about the presence of risks, especially those considered urgent within political agendas. They need risks to be seen as urgent for the people to justify their safety measures as without the population's cooperation most preparedness or prevention strategies fail. For them to be successful, however, it is also essential to manage people's perceptions and emotions; a whole branch of risk studies focuses on understanding and predicting how people will perceive risk.

The Social Amplification of Risk Framework (SARF), is a sociological tool that calculates how the interrelation between different risk factors influences emotions and decisions.[95] Its promoters believe that by calculating in advance specific psychological, social, institutional, and cultural conditions, they can predict how people may perceive risk and inform better risk communication campaigns. Research conducted using SARF is often used as evidence to inform policy and risk communication and contributes to decide their verbal and visual language. However, can a formula be effective in correctly orienting the public perception of risk and eliminate fear? Risk communication changes case by case but Baruch Fischhoff's Seven Evolutionary Stages of Risk Communication are a popular model informing today practices:

> All we have to do is get the numbers right.
>
> All we have to do is tell them the numbers.

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[94] Franklin D. Roosevelt, Inaugural Address, March 4, 1933, as published in Samuel Rosenman, ed., *The Public Papers of Franklin D. Roosevelt, Volume Two: The Year of Crisis 1933*, (New York: Random House, 1938), 11–16.

[95] Nick Pidgeon and Karen Henwood, "The Social Amplification of Risk Framework (SARF): Theory, Critiques, and Policy Implications", in *Risk Communication and Public Health*, eds Peter Bennett et all. (Oxford : Oxford University Press, February 01, 2010). Date Accessed 5 Nov. 2019 <https://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199562848.001.0001/acprof-9780199562848-chapter-04>.

All we have to do is explain what we mean by the numbers.
All we have to do is show them that they've accepted similar risks in the past.
All we have to do is show them that it's a good deal for them.
All we have to do is treat them nice.
All we have to do is make them our partners.
All of the above. [96]

With these principles in mind, risk communicators attempt to create bridges between the experts assessing risks and ordinary people. They rely (or attempt to) on scientific and attestable information and in this way filter out the disruptive effect of false alarms and frame the risk as manageable. Scare tactics can be detrimental to an effective risk communication campaign that must instil a degree of urgency in the public, but avoid fear or panic. People need to *see*, or be aware of the risks, but risks must also appear as manageable and tractable to them.

Risk communication campaigns are committed to giving people bad news with a reassuring tone, but this is easier said than done. In the recent anti-terrorism posters campaign from the London Transport authority, for example, the emphasis on suspicious behaviour is counterbalanced by the slightly incongruent slogan "See it. Say it. Sorted" (Figure 5). In this series of posters, commuters are invited to spot the signs of a terrorist attack: a baggage that has no owner, someone hiding in a corner, or wearing a too-large coat. These posters attempt to turn the everyday commuter into a "vigilant subject",[97] who, in theory, has nothing to fear as the posters offers a readymade plan for action: a police phone number. The optimistic text on the poster, however, is too much of a stark contrast to the overall situation. It attempts to instil a sense of urgency whilst avoiding panic and fear: the results, however, are rather clumsy. [98]

Risk communication becomes even more complicated when authorities, rather than encouraging people to avoid risk, have to persuade them to accept a reasonable degree of risk. In preparation for the Olympic Games in London 2012, for example, the severe threat of terrorism justified the decision of the Ministry of Defence to put defensive missiles on the roof terrace of Lexington Building, an estate strategically placed near the Olympic Park.

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[96] Baruch Fischhoff, "Risk Perception and Communication Unplugged: Twenty Years of Process", in *Risk Analysis*, 15.2 (1995), 138.
[97]Ronald Emerson, "Vigilant subjects" in *Politics* Wiley: January 2018. Available through researchgate.net, accessed Oct 2019, https://doi.org/10.1177/0263395717747129.
[98] For empirical research on the efficacy of the poster campaign see: Julia M. Pearce et all. "Encouraging public reporting of suspicious behaviour on rail networks", in *Policing and Society*, 2019, accessed 15 October 2019, https://www.tandfonline.com/doi/abs/10.1080/10439463.2019.1607340.

A communication campaign was implemented through a leaflet campaign followed by consultation meetings with the residents.[99] Most of Fischhoff's rules were applied: the police reassured that the missiles were not a threat for residents and that the whole operation was safe, but the residents rejected the proposal as their home would quickly become a preferred target due to the missiles. [100]

FIGURE 5 *SEE IT. SAY IT. SORT IT. SORTED*. BRITISH TRANSPORT POLICE POSTER CAMPAIGN LONDON NOVEMBER 2016.

These examples show that the question of how to communicate risks properly and the consequent social amplification of risk are the external manifestations of what essentially is a problem of judgement (or estimation).[101] How can we "get the numbers right" about terrorism? How can having a missile on one's terrace be "a good deal"? How can one sort out terrorism by reporting random people to the police because they 'look' suspicious? In such a complicated conundrum, for the authorities it is more important to save as many lives as possible than to quantify risk with the exact magnitude, and this logic justifies decisions often unpopular. As the missiles example shows, however, the protective measures can put people in even more vulnerable positions.

The perception of risk is a complicated matter involving evidence-based reasoning, as

[99] Ministry of Defence, "Armed Forces at Lexington Building Water Tower, Bow Quarter". Army HQ Design Studio, 2012. Accessed online 15 November 2019. http://www.blowe.org.uk/2012/04/plans-confirmed-for-missiles-over.html

[100] For news reporting the event see Robert Booth, "London rooftops to carry missiles during Olympic Games". The Guardian. 29 April 2012. Accessed 15 Nov 2019 https://www.theguardian.com/sport/2012/apr/29/london-rooftops-missiles-olympic-games?CMP=share_btn_link

[101] I will come back to the problem of judgment in greater detail in Chapter 8, when I will discuss data driven decision making under conditions of uncertainty. Here instead I point out the repercussions of misjudgement in the communication of risk.

well as also emotions, feelings and the imagination: it is in itself quite unpredictable and subjective. Where there is risk there will always be a margin of uncertainty. Moreover, the perception of such margins is always entangled with the workings of power relations as well as individual conditions and perceptions. Factual information and reassuring tones do not always work. Statistical data and calculations are not always available, and, in any case, they remain probabilistic. The indiscriminate use of alarming language in the media and by politicians is often more impactful and misleading than public risk information campaigns. In some cases, alarming images and narratives become part of the collective imagination, in others, we are reassured because experts have told us what to do if and when danger strikes. How these two 'approaches' minimise or accentuate risks? How do they manifest themselves aesthetically and do they effectively reorient the public perception of risk? The following chapters will be devoted to answering these questions via the analysis of different styles and content of warnings. However, before actually digging into the visual vocabulary of risk, I shall add two crucial remarks regarding risk and emotions.

The first remark concerns the appeal to reassurance in risk communication. If risk represents a proactive method to reduce uncertainty, then, risk communication should not just inform about a problem, but also suggest possible solutions: it should cultivate fear only to the extent that it suggests taking an action. As we have seen, fear can be exploited for political reasons and as a powerful tool for mobilizing society, yet experiencing risk is something quite different from feeling immobilized by fear. Risk is a more hopeful, almost reassuring term for uncertainty, the result of a defence mechanism that both decision-makers and ordinary people should collaborate in constructing. If fear, in Bauman's words, "is at its most fearsome when it is diffused (…) free-floating, with no clear address or cause",[102] risk gives that fear an anchor, an identified enemy to face, a threat and the instructions of what should be done. One could even see risk-taking as a way to overcome one's own fear. Nevertheless, the situation is not as simple: when to be at risk is not a matter of choice reassuring tones might be pointless and patronising. Ultimately, the incongruity of *See it, Say it, Sorted,* says it all — alarming emphasis on suspicious behaviour followed by a clumsy attempt to reassure the population that all is under control.

The second remark concerns the visual strategies and artefacts that are involved, through mediation or representation, in the management of risk. SARF and risk communication can be too positivist in my view, but they open up a discourse around the visual dimension of risk to which the study of design, art, and visual culture should undoubtedly contribute. SARF invests risk communication with a significant responsibility and believes that the

[102] Bauman, *Liquid Life*, 3.

images, narratives or metaphors we use in illustrating risks do change how we perceive them. An emerging field of research is focussing on the importance of the visual dimension of risk. According to a recent publication, the technologies (or techniques) used to represent or illustrate risk, play a part in constructing different understandings of risk situations.[103] Media images of disasters, accidents, financial crashes, successful or failed stunts and feats, for example, mediate risk (or provide a mediated aesthetic experience of risk) by showing us potential future consequences and ending, in this sense they allow us to anticipate.

Models, instructions, statistical and probability calculations, and performed simulations constitute, in my view, the visual vocabulary of risk and I shall refer to them as such. It is through these techniques that risk becomes manifest, as they provide the safety dimension that allows us to experience and understand what may potentially harm us. In doing so they enable the design of suitable responses and techniques. Risk techniques attempt to train our vigilant eyes and abilities to respond, while also impacting us emotionally and somatically, socially and politically. They re-orient our experience of the world and the decisions we make in regards to the future, and they do so by mediating our experience of danger from a position of safety. As I will show in the following chapter, they facilitate aesthetic experiences and not direct threats.

1.7 Conclusion

In this chapter, I have shown how much literature on risk considers it one of the "consequences of modernity".[104] The presence of risk implies a vision of the world as disenfranchised by notions of the afterlife and divine retribution and conceptualises the future as something that, even if uncertain, can be predicted or pre-empted. This future seems today more tangible than ever before, thanks to the confidence in the human ability to modify it, it is as close and visible as a bomb hanging over one's head. I have shown that the *existence* of risk is an open debate between different scholarly and operational approaches. Realists sustain that risks are objective realities, such as natural disasters that are *real* threats which must be managed. The Constructionists, on the other hand, believe that risks are socially and culturally constructed: risk for them, is what we perceive as threat stemming from our mentality, belief system, or social norms. Studies of Governmentality, finally, sustain that risk is *produced* as a part of a disciplinary system of governance, while

[103] Hermann Mitterhofer and Silvia Jordan, "Imagining Risk - The visual dimension in risk analysis", 327.
[104] Giddens, *Ibidem,* 1994.

risk communication has emerged as a minefield, challenged by the labile balance of producing risk without alarming the population. In conclusion, I suggested that the imagination is closely involved in the process of risk perception, as risks in the future are, essentially hypothetical. They exist at once as possible imagined realities and concrete techniques that translate these realities into management techniques. These techniques are the interfaces through which risks become manifest: they warn our imagination of the risk that we may face by representing (or visualising) them. At the same time, the risks that we see affect our imagination and cultural production; it is to the exploration of this dimension (which I will later define as "aesthetic") that this research points to. Risk should not be confused with fear, but with the proactive attempt to make uncertainty manageable.

2 CHAPTER. Risk, Aesthetic, Art

FIGURE 6 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2015. LEFT TO RIGHT: TIM ETCHELLS, *WAIT HERE,* 2008, NEON. JEPPE HEIN *BALL ON A PEDESTAL,* 2007. POWDER-COATED ALUMINIUM, STEEL, WOOD, CHAIN DRIVE, MAGNET, STAINLESS STEEL BALL; FÉLIX GONZÁLEZ-TORRES, *UNTITLED (CHEMO),* 1991 STRANDS OF BEADS AND HANGING DEVICE. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY

2.1 Introduction

This chapter will propose the contribution of aesthetics to the cross-disciplinary study of risk and map out some of the existing literature across these fields. After clarifying what I mean by "the aesthetic dimension of risk", the following sections will delineate the critical questions that are shared between risk studies, aesthetics, and art. I will map some of the most iconic artworks that have proven risk-taking to be allied to artistic practice. Through this process I will also situate my critical position among a multiplicity of other, different approaches that have addressed the slippery relation between risk and art. In doing so, I will

build upon my curatorial practice acquired while working on the exhibition *Risk;*[105] conversations with artists, curators, and risk professionals; as well as extensive art historical research, occurred during this process.

2.2 Risk and Aesthetics

The previous chapter discusses some of the complex dynamics through which policy makers and private companies build on the confidence and participation of the population to make risks understandable and manageable. Visual culture, I will emphasise here, has an active part to play in this process. The establishing of signage, safety communication, and public health, as well as the presence of safety messages in advertising are examples of how "invisible risks" are envisioned in the collective imagination. On the other hand, the strong presence of visual artefacts and techniques for the management of risk is experienced in tandem with news images and documents of disasters, which are themselves shocking or traumatic signifiers. In this section, I will be engaging with such material through aesthetic discourses.

Risk, I shall hypothesise, is permeating our current visual language via triggering ideas of danger and safety on an aesthetic level. The aesthetic, in this context, should not be considered as the traditional pursuit of beauty, but as a *rhetoric* — a concern with how an image appearance "disposes its viewers to see the world". [106] The aesthetic of risk, as I explained in the introduction, should not be understood as pure form, but as *the* way in which risk is presented and mediated, as a mode of presentation that is never separated by ethical significance. In the volume *The Life and Death of Images: Ethics and Aesthetics*, Diarmuid Costello and Dominic Willsdon have emphasised the *agency* of images or artefacts stressing "the vitality, or even the virulence of images and their various forms of political efficacy and ethical valence".[107] In line with their argument this thesis contends that the rhetoric adopted to represent risks, such as instructional images, signs and visualisations, is particularly charged with ethical and political responsibilities. It is, in fact, designed to elicit

[105] *Risk,* Turner Contemporary, Margate10 October 2015 - 17 January 2016
[106] Diarmuid Costello and Dominic Willsdon, eds., *The Life and Death of Images: Ethics and Aesthetics* (London: Tate, 2008), 13.
[107] *Idem*, 16.

understandings and feelings, such as reassurance or fear, that transform perceptions and behaviours.

The aesthetic experience of risk does not necessarily engage with the direct act of risk-taking, but rather on how the visual vocabulary of risk enables us to reflect on such an experience, indirectly and from a position of safety. This level of mediation is, in fact, an essential aspect of defining the parameters of this research. Risk aesthetics, for me, does not involve the direct pleasures of edgework, even if someone may identify such pleasure as aesthetic.[108] Nor can I consider justified terror an *aesthetic* experience.[109] Instead, I am describing a mediated experience, more indirect in its nature, that arises from the encounter with the "aesthetic objects" of risk. These are the warnings, instructions, visualisations, and also artworks that make possible risks apparent, or rather perceptible — as in the ancient Greek word *Aestheta* meaning "all things perceived" (as opposed to *voeta*: all things intelligible). If risk is, as discussed in the previous chapter, an abstract idea of what may happen in the future, it is not something that can be directly experienced in the present but only mediated.

The current research, therefore, frames the aesthetic of risk as a mediated experience that is apprehended from a necessary condition of relative safety. It is not concerned with "taking a risk" but more with "witnessing someone taking a risk". This condition of safety, in fact, determines the possibility for anticipation to take place. It allows us to study the technique of our enemy on a video screen, so we can theoretically anticipate his moves, be the enemy an illness, a financial loss or a volcano. Once a danger is systematically anticipated it becomes a risk. For this reason, there is no space for the aesthetic of risk when dangers strike, tornados are coming, and bullets are flying. The aesthetic dimension of risk is mostly, distant, and, in a way, privileged; it is concerned with how we engage with the lexicon of risk from a relative condition of safety.

A contribution in this direction comes from one of the fathers of liberal thought, Edmund Burke and his theory of the sublime. Writing in 1757 about the 'sublime experience', Burke pointed out that the aesthetic contemplation of "what make us fearful" provides a sort of emotional training, which exercises what he called "the finer organs". It is worth quoting

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[108] See for this approach Mark Stranger. "The Aesthetics of Risk: The Case of Surfing". *International Review for the Sociology of Sport*, 34 (1999): 265-276.

§[109] In his analysis of the sublime experience, Edmond Burke made the same point. See: Edmund Burke, *On the Sublime and Beautiful*. Vol. XXIV, Part 2. The Harvard Classics, (New York: P.F. Collier & Son, 1909–14; Bartleby.com, 2001. www.bartleby.com/24/2/. [Date of Printout].

Burke's original passage,

> As common labour, which is a mode of pain, is the exercise of the *grosser*, a mode of terror is the exercise of the *finer* parts of the system; and if a certain mode of pain be of such a nature as to act upon the eye or the ear, as they are the most delicate organs, the affection approaches more nearly to that which has a mental cause. In all these cases, if the pain and terror are so modified as not to be actually noxious; if the pain is not carried to violence, and the terror is not conversant about the present destruction of the person, as these emotions clear the parts, whether fine or gross, of a dangerous and troublesome encumbrance, they are capable of producing delight; not pleasure, but a sort of delightful horror, a sort of tranquillity tinged with terror; which, as it belongs to self-preservation, is one of the strongest of all the passions. Its object is the sublime.[110]

Leaving aside Burke's outdated and unclear idea of finer organs, his belief in the enhancing effects of contemplating something fearful (or painful) whilst not being in actual danger has some common traits with the aesthetic experience of risk. Its echo is evident in the supposedly educational proliferation of warning and alarming imagery in public information campaigns and the media. Posters, such as *See it, Say it Sort it* (Figure 5), inviting passers-by to see, hear, and sense danger are supposed to enhance one's ability to perceive danger and to overcome it. More extremely, the depictions of pain and disfiguration with emotional and distressing effects, adopted by advertising and the media, are often justified by the good cause of deterrence and self-preservation. As Burke pointed out, however, it is only from a position of privilege and safety that terror can be appreciated as a positive self-preserving emotion. Transposed in the contemporary risk society, Burke's ideas draw attention to us, the viewers and consumers of images. We, who somewhat cynically observe the terrors and risks that abound in the world, prepare for the worst from the comfort of our living rooms. Models, statistics and probability calculations, and preparedness protocols provide the safety dimension that, as Burke identified, allows us to experience and understand what may potentially harm us, and enable the design of suitable responses and techniques.

Several writers in the field of risk studies and visual culture have discussed the 'function' of images in the risk society. Where the effects of "threat images" are being investigated in psychology and neuroscience, political theorists are concerned with regulating their

[110] Edmund Burke, *On the Sublime and Beautiful*.

deployment in the public realm.[111] The discussion of risk perception in sociological literature gives relatively little attention to aesthetic concerns, nor does it engage with artistic practices as vectors for shifting and or understanding risk. There are, however, some exceptions. Recent sociological research has engaged with risk aesthetics by incorporating what Rancière called "distribution of the sensible" (*partage du sensible*). [112] These studies point out that today populations of entire cities are displaced due to different kinds of safety issues, with the role of images being fundamental for such processes of collective mobilization. From China to Japan, from Colombia to Italy, the representations of places as dangerous is an essential factor in the social and political dynamics inherent to the production of risk and consequent acceptance of hazardous realities (and futures) by the affected populations. For Geographer Austin Ziderman, these initiatives cultivate "engendered communities of sense" through "sensory trainings" that enable them to perceive their community as dangerous.[113]

The field of visual culture, on the other hand, has had a long-term engagement with the supposed agency of traumatic images. The most notable of them remains Susan Sontag's famous *Regarding the Pain of Others* (2003).[114] In recalling her first encounter with an image of trauma, Sontag described it as a sort of negative epiphany. After encountering an image of the holocaust, she could never see the world in the same way as before. However, she also described that experience as a 'one-off event', followed by an anesthetizing process that inoculated her against feeling the same ever again. Responding to Sontag poignant writing, Judith Butler wrote a few years later that "images must (still) have a transitive function" if their presence in circuits of communicability is still so contested."[115] Recalling Aby Warburg's *pathosformel*, Griselda Pollock wrote that images are charged with an

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[111] For the study of threat images in risk studies see Johan Eriksson and Erik Noreen, "Setting the Agenda of Threats: An Explanatory Model", (Uppsala Peace Research Papers: 2002) and Johan Eriksson, *Threat Politics : New Perspectives on Security, Risk and Crisis Managemen*t (Routledge Revivals, 2017). For threat images in psychology see Frances A. Maratos, et al. "Coarse threat images reveal theta oscillations in the amygdala: A magnetoencephalography study." *Cognitive, Affective, & Behavioral Neuroscience* 9.2 (2009): 133-143.

[112] Jacques Rancière, T*he Politics of Aesthetics: The Distribution of the Sensible*; trans. Gabriel Rockhill, (London: Bloomsbury 2013). For examples of such studies see Asher D. Ghertner, Hudson McFann and Daniel M. Goldstein, eds. *Futureproof: Security Aesthetics and the Management of Life. Global Insecurities* (Durham : Duke University Press, 2020) or Asher D. Ghertner, "Rule by aesthetics: World-class city making in Delhi." *Worlding cities: Asian experiments and the art of being global,* eds. Ananya Roy and Aihwa Ong (Wiley-Blackwell, 2011): 279-306.

[113] Austin Zeiderman, "Danger signs: the aesthetics of insecurity in Bogotá". In Ghertner D. Asher et all. eds., *Futureproof: Security Aesthetics and the Management of Life. Global Insecurities* (Durham : Duke University Press, 2020), 63 - 86.

[114] Susan Sontag, *Regarding the Pain of Others*, (London: Penguin Books, 2005).

[115] The contest for these considerations was the circulation of images from Abu Ghirab. Butler, Judith. "Torture and the Ethics of Photography." *Environment and Planning D: Society and Space* 25, no. 6 (2007): 951–66, 955. https://doi.org/10.1068/d2506jb.

emotional freight for their very symbolic status, which operates in the interval between the conscious and the unconscious, "between the historically contingent and the structurally recurrent".[116] The aesthetic interest in images of violence and trauma has also engaged with their grotesque power. W.J.T. Mitchell, for example, has problematised the status of images as symptoms or evidence of violence or as signifiers where trauma becomes aestheticized.[117] There studies may have not necessarily considered the role of such images in terms of 'public perception of risk', but they have clearly identified an important overlap between aesthetics and psychology of risk perception: as Butler wrote "when we feel outrage, we construct political views that incorporate that outrage".[118]

FIGURE 7 *THE TOWER*, CARD 17 OF THE TAROT DECK.

[116] Griselda Pollock, "Dying, seeing, feeling: Transforming the ethical space of feminist aesthetics." In *The life and death of images: Ethics and aesthetics* (2008): 213-35. Quote from p.212. For Aby Warburg Pathosformel see Colleen Becker,"Aby Warburg's Pathosformel as methodological paradigm." *Journal of Art Historiography* 9 (2013): CB1.
[117] William J. Thomas Mitchell, "Cloning terror: The war of images 2001–2004." in *The life and death of images: Ethics and aesthetics* (2008): 179-207.
[118] Butler, *Ibidem*, 2007, 956.

One does not need to go too far to see what Butler spoke about. When a twenty-seven floors residential building burned down in London the image of the tower block on fire got immediately imprinted in the collective imagination, obsessively reproduced in newspapers, TV and the internet. Its status as an icon was ever more powerful as it echoed the typical iconography of calamity; from the unforgettable images of the Twin Towers to the tarot deck, where the card with a tower on fire is a warning of worse things to come (Figure 7). The exceptional fire was due to a breach of fire safety regulations. Decision-makers either could not or would not acknowledge the real risk fire posed. Instead, financial concerns prevailed and a non-fire-resistant cladding system was built into the building. Would have decision-makers acted otherwise, had they seen the images that subsequently documented the disaster they were responsible for? Though it is a rhetorical question, it points to the fact that images are important actors (or agents) in the theatre of risk. The sight of the burnt building, so clear, un-concealable, and terrifying is a stark warning sign. It instantiates the risk of fire, inscribing it into a cycle of past, present and future disasters, as an event that contains the possibility of its own re-enactment.

Images such as the ones of Grenfell have not just alarming effects, they enable us to judge between the severity and probability of different types of risks, offering an insight into the required management measures. They have a clear social function. Just like warning signs they reorient our experience of the world and the decisions we make regarding the future by mediating our experience of danger. They impact us emotionally and somatically, as well as socially and politically.

The aesthetics of risk, then, must provide a useful terrain for addressing the discrepancy between different forms of expertise and risk perceptions (what psychologists call the risk perception gap).[119]It should offer us experiences of mediated anticipation that can orient the decision-making process to avoid or embrace the unpredictable challenges and opportunities of life. It should make us experience terror, but only from a position of safety. Or even would reassure us, giving the impression that certain risks are tractable or manageable. More importantly, as scare tactics and reassuring techniques often falsify risks to serve the purpose of stringent political agendas, an aesthetic theory of risk can help disentangling these complex dynamics; it contributes to recalibrating the representations of risk and their

[119] David Ropeik and George M. Gray. *Risk: A practical guide for deciding what's really safe and what's dangerous in the world around you*, (Boston: Houghton Mifflin Harcourt, 2002).

"distribution" in the public realm. In a historical period, when risk constructs most of the narratives and visions of the future, the need to see alternative paths is crucial.

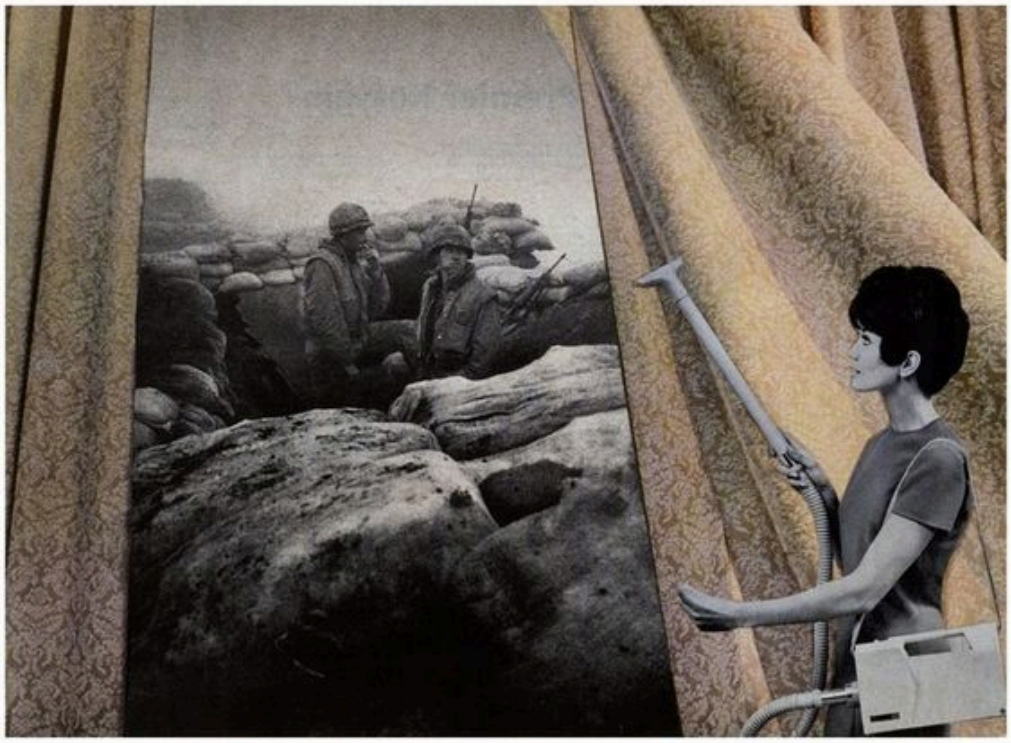

FIGURE 8 MARTHA ROSLER, *CLEANING THE DRAPES* FROM THE SERIES *HOUSE BEAUTIFUL: BRINGING THE WAR HOME C*. 1967-72. PHOTOMONTAGE, MOMA COLLECTION.

2.3 Curating *Risk.*

Does art offer a privileged point of view for understanding the aesthetics of risk? Philosopher Sabine Roeser recently argued that artistic practice, as opposed to signs and instructions, can enable us to engage reflectively with risk.[120] When we see artists taking risk we are not in danger, but can sense and reflect, through our emotions, the meaning of their gestures. In experiencing risk techniques through artworks, then, we have the opportunity to re-orient ourselves in relations to what is at stake for artists, for ourselves, for society and for the planet. Artworks open up spaces for us to sense risk and reposition our intentions in relation to what may happen.

[120] Sabine Roeser, Veronica Alfano, and Caroline Nevejan, "The Role of Art in Emotional-Moral Reflection on Risky and Controversial Technologies: the Case of BNCI", in *Ethic Theory Moral Practice,* 21 (2018): 275–89, accessed 23 October 2019, https://doi.org/10.1007/s10677-018-9878-6.

FIGURE 9 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. BACKGROUND FROM LEFT TO RIGHT: GERHARD RICHTER, *OIL SKETCH NO. 432/11*, 1977, OIL ON CANVAS, TATE; GERHARD RICHTER, *ST JOHN*, 1988, OIL ON CANVAS, TATE; CHRIS BURDEN *BEAM DROP, INHOTIM*, 2008, VIDEO 5:36; IN THE CASE: *JOURNAL OF EDWARD BARLOW*, 1659-1703, MANUSCRIPT, NATIONAL MARITIME MUSEUM, LONDON.


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FIGURE 10 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. JUAN DELGADO, *SAILING OUT OF GRAIN*, 2012 FILM, 9 MINUTES

FIGURE 11 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. FOREGROUND: LUCY WOOD, *CAN'T PLAY WON'T PLAY,* 1996, STEEL AND GLASS. BACKGROUND LEFT TO RIGHT: AI WEIWEI, *STUDY OF PERSPECTIVE,* 1995-2011, 40 PRINTS; ANDREAS GURSKY, *HONG KONG, STOCK EXCHANGE,* DIPTYCH, 1994

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FIGURE 12 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. JEPPE HEIN, *BALL ON A PEDESTAL,* 2007, POWDER-COATED ALUMINIUM, STEEL, WOO, CHAIN DRIVE, MAGNET. BASHIBA, *PANORAMA V - REAL-TIME STOCK MARKET CLIMATE: 6 OCT 2008,* STOCK MARKET VISUALISATION TOOL © BASHIBA

FIGURE 13 RISK, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. LEFT TO RIGHT: FÉLIX GONZÁLEZ-TORRES, *"UNTITLED" (CHEMO),* 1991, STRANDS OF BEADS AND HANGING DEVICE

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FIGURE 14 RISK, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. LEFT TO RIGHT: GERHARD RICHTER, *ABSTRACT PAINTING NO. 439*, 1978. ROBERT MORRIS, *WALL HANGING, (TENTURE*), 1969-1970, CUT FELT.

FIGURE 15 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. SOPHIE CALLE, *SUITE VENITIENNE,* 1980-1994, 55 PHOTOGRAPHS, 23 TEXTS, 3 COLOUR MAPS CENTRE POMPIDOU OIL ON CANVAS

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FIGURE 16 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. MARCEL DUCHAMP, *3 STOPPAGES ÉTALON (3 STANDARD STOPPAGES)*, 1916-14, REPLICA 1964, WOOD, GLASS AND PAINT ON CANVAS, TATE.

FIGURE 17 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. LEFT TO RIGHT: YVES KLEIN, *LEAP INTO THE VOID*, 1960, PHOTOGRAPH BY HARRY SHUNK-JOHN KENDER, PRIVATE COLLECTION. GERHARD RICHTER, *SELF-PORTRAIT, THREE TIMES,* 1990, PHOTOGRAPH.

FIGURE 18 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. JEREMY DELLER, *YOU ARE HERE AT YOUR OWN RISK*, 2014, BANNER MADE BY ED HALL.

The relation between risk and art opens up a vast field of critical enquiry, but only a few, unconnected attempts have been made in this direction. The volume *The Aesthetics of Risk* (2008) published following a conference organised by the Southern California Consortium of Art Schools (SoCCAS) is one of them.[121] The book primarily focuses on dissent, transgression, and unpredictability as strategies for artistic resistance. These tactics, which John Welchman considers synonyms to risk-taking, are artistic actions in defence of what he calls the "subjective life"; the individual right to take and perceive risks against "the hydra-headed infrastructure that administers risk on our behalf".[122] For him, the aesthetics of risk are mainly concerned with the body and its politics,

> If Foucault traces the techniques through which power is inscribed onto bodies by institutions, then an aesthetic of risk operates within the periphery of these actions, in places where bodies seek, discover and elude strategies for eluding institutional markings and sociological categories.[123]

I share with Welchman the belief that artistic practice is an essential space to enable subjective critical reflection on how society is today governed through risk. My position, however, shall move beyond discourses of transgression and dissent of the body, and focus on understanding and describing the interconnected dynamics between artistic practice and the management of risk. Scholars, critics, and curators have interpreted risk in artistic practice as a form of dissent and disruption. Some have discussed terror and destruction in art and others have examined fear and the capacity that images and artworks have to generate it.[124]

This research, however, delineates a new aspect that is complementary, yet not less relevant, to this general approach focussed on dissent. What if the aesthetic of risk was not just one of disruption, but instead one of reassuring instructions, one that constructs and performs safety as much as danger? Such instances, hugely popular in risk communication and public health campaigns, deserve an in-depth iconographic analysis that reaches also the theory and analysis of art. Artists' engagement with risk, I suggest, goes beyond their

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[121] John C. Welchman (ed.), *The Aesthetics of Risk: SoCCAS Symposium Vol. III*, (Zurich: JRP|Ringie , 2008).
[122] *Idem,* 9.
[123] *Idem,*26
[124] See for example Bernadette Buckley, "The Workshop of Filthy Creation: Or Do Not Be Alarmed, This is Only a Test*". Review of International Studies*, 35 (2009): 835-857. Paul Virilio, *Art and Fear* ; translated by Julie Rose. (London ; New York: Continuum, 2006).

transgressive attitude and propensity to risk-taking. Issues of public safety, control and probability have informed artistic practice equally, if not more, than terror and fear, and as such, they deserve systematic attention. In the following paragraphs I will discuss some of the curatorial and critical experiences directed to explore risk in artistic practice. Through a concise review of exhibitions, publications and artworks, I will situate this research (and the exhibition *Risk*) in relation to these experiences, as a part of a larger spectrum of possibilities for engaging risk in an artistic context.

FIGURE 19 RISK, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. FOREGROUND: RUTH PROCTOR, *OK, SET, DROP*, 2013, SCAFFOLD AND CARDBOARD BOXES, VIDEO DOCUMENTING PERFORMANCE. BACKGROUND FROM LEFT TO RIGHT: GERHARD RICHTER, *OIL SKETCH NO. 432/11*, 1977, OIL ON CANVAS, TATE; GERHARD RICHTER, *ST JOHN*, 1988, OIL ON CANVAS, TATE; CHRIS BURDEN *BEAM DROP, INHOTIM*, 2008, VIDEO 5:36; MARCEL DUCHAMP *3 STOPPAGES ÉTALON (3 STANDARD STOPPAGES)*, 1916-14, REPLICA 1964. WOOD, GLASS AND PAINT ON CANVAS, TATE.

When I began working on the exhibition *Risk* (Figure 6 and Figure 9-23), the richness of academic and intellectual enquiry into the study of risk in the social sciences was (and still is) significantly missing in the field of art. Alongside the aforementioned volume, *The*

Aesthetics of Risk, there had been only a few rare attempts to address risk in an artistic context, these too focussed mainly on the politics of the body and performance art.[125] The art magazine Artforum, however, had dedicated it's September 2013 issue to art addressing environmental risk,[126] while art historian Hal Foster had just published a collection of essays titled *Bad New Days: Art, Criticism and Emergency* (2015). In this book, Foster considered how art and criticism of the recent years responded to the emergence of wider cultural and historical changes before and after 9\11, when "emergency did prove to be more the norm than the exception".[127] In examining the works of Cindy Sherman, Tacita Dean, and Thomas Hirschhorn he argued that their engagement with practices of "abjection", "archival" or "precariousness" was their attempt to grapple with a particular historical condition. It was a response, he claimed, to the culture of emergency promoted by neo-liberalism and its ideological and political use of terror.

When considering the art of the past century, however, there are innumerable examples of artists responding to disrupting events and entering into cultural dialogue with their ideological representations in the media. These include Martha Rosler's famous *House Beautiful: Bringing the War Home* (c. 1967–72) (Figure 8) in response to the Vietnam War,[128] or Hans-Peter Feldmann's appropriation of 9/11 images.[129] In the 1970s and 80s, when debates about ecology and over industrialisation became mainstream, artists such as The Harrisons (Helen Mayer Harrison and Newton Harrison), Agnes Denes or Joseph Beuys used soil, earth and planting as artistic mediums to produce ecological art and to promote different ways of looking at nature.[130] At the time of the civil rights movement, performance artists were putting their body at risk for political reasons. In the 1990s, at a time of relative peace for the western world, the systematic use of shock became a common place in both advertising and art: from Oliviero Toscani's Benetton adverts to the Young British Artists and to the extreme body art of artist such as Ron Athey or Franco B. More specifically, some artists engaged with risk by creating seemingly hazardous environments

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[125] See for example Adam Alston, "Safety, Risk and Speculation in the Immersive Industry, Interventions", *Contemporary Theatre Review*, July 2019. See also Louise Owen, "Performing risk: Neoliberalization and Contemporary Performance", (PhD diss., Queen Mary, University of London, 2009).
[126] Michelle Kuo, ed. "High Risk: art, environment, crisis", *Artforum International*, 52.1 (2013): 336-404.
[127] Hal Foster, *Bad New Days: Art, Criticism, Emergency*, (London: Verso Books, 2015), 4.
[128] Martha Rosler *House Beautiful: Bringing the War Home*, c. 1967–72. Series of twelve cut-and-pasted printed paper on board.
[129] Hans-Peter Feldmann (1941-) *9/12 frontpage*, 2001. 151 newspapers. This work was recently exhibited the Imperial War Museum in London in *Age of Terror: Art since 9/11*. 26 October 2017 – 28 May 2018.
[130] See for example: The Harrisons, *Hog Pasture: Survival Piece #1,* 1970-71, Joseph Beuys, *7000 Oak Trees*,1982, Agnes Denes, *Wheatfield – A Confrontation,* 1982.

for the public to experience; such as Mona Hatoum's *Homebound* (2000), a work suggesting an underlying threat in the domestic environment.[131] Politically engaged practices, moreover, have appropriated the institutional methods used to manage risk and pointed to the frictions between 'objective' risks and personal choices or perceptions of them (e.g., Harun Farocki, Claire Fontaine).[132]

FIGURE 20 RISK, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. FROM LEFT TO RIGHT: ROBERT MORRIS, WALL HANGING, (TENTURE), 1969-1970, CUT FELT, CENTRE POMPIDOU, PARIS; EVA HESSE, ONE MORE THAN ONE, 1967, ACRYLIC, PAPIER-MÂCHÉ, WOOD, PLASTIC, ROPE; JOSE DAVILA, JOINT EFFORT, 2014, GLASS, BOULDER, AND RATCHET STRAPS.

We did not have to look much further away from the biggest names in the museum's collections to discover the enormously broad scope for exploring risk in the artistic arena. At the same time curating an exhibition on risk and art was going to be particularly stimulating and challenging as every expert and artist we spoke with had something different

[131] Mona Hatoum, *Homebound*, 2000. Kitchen utensils, furniture, electrical wire, light bulbs, dimmer unit, amplifier and two speakers, dimensions variable.
[132] I will briefly return to Farocki in this chapter. About Claire Fontaine see for example the video *Situations* (2011, 32.38min) discussed at the Symposium *Art Matters: at Risk* organised in conjunction with the exhibition *Risk* (5 December 2016).

to say about risk. Every work of art, it soon appeared, was somehow a risky endeavour; nevertheless, not all works of art make risk perceptible.[133] With this in mind, we identified four possible critical categorisations, that, for us could prompt intriguing questions for the public and more importantly, map out some of the most significant examples of mainstream art engaging with risks. These were: 'risk, chance, and material', 'risks to the body', 'public at risk', and 'risks in society'. I shall now briefly discuss each of them, bearing in mind that unfortunately, an in-depth discussion of each individual work is beyond the scope of this dissertation.

Trough the critical categorisation 'Risk, chance and material', we asked how artists have taken risks by experimenting with chance, nature and unpredictability as a part of their creative process. Revolving around *Three Standard Stoppages* (1916-14)[134] by Marcel Duchamp, this section of the exhibition explored its legacy in the art of the 20th century, with artists letting external forces taking control of their work. It featured works by Robert Morris, who spoke about his "controlled lack of control" and allowed gravity to shape his felt sculptures. [135] Eva Hesse, who experimented with various materials that could potentially decompose over the years, was present with her sculpture *One More than One* (1967).[136] And Gerhard Richter's abstract paintings (e.g. *Abstract Painting No. 439,* 1978) exposed the established figurative painter's leap into abstract painting, so as to let "a thing come, rather than creating it".[137] Similarly, a video of Francis Alÿs's jumping into a tornado (*Tornado, Milpa Alta*, 2000-10)[138] and Sophie Calle's *Suite Venetienne* (1980-94),[139] where the artist followed a stranger to Venice, presented risk-taking as a deliberate artistic tactic. These artworks were just some of the many instances throughout the 20th century western art, where artists have embraced uncertainty and the unpredictable to create something beyond their own imagination. They have transformed risks into opportunities.

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[133] We came to this conclusion when realising that all artwork involves a certain degree of risk making, thus having it as a criterion for the selection process was impossible.
[134] I discuss this work in the Chapter 7.
[135] Robert Morris, "Some notes on the Phenomenology of Making", in *Continuous Project Altered Daily: The Writings of Robert Morris*, (Cambridge, Massachusetts: October Books, the MIT Press , 1993), 86.
[136]Eva Hesse, *One more than one*, 1967 Acrylic, papier-mâché, wood, plastic, rope. Collection Dorothee and Konrad Fischer. Hesse wrote about her work "At this point I feel a little guilty when people want to buy [latex works]. I think they know but I want to write them a letter and say it is not going to last … life doesn't last, art doesn't last, it doesn't matter". In Cindy Nemser, "My Memories of Eva Hesse." *Woman's Art Journal* 28.1 (2007): 26-28.
[137] Gerhard Richter, "Notes 1985" in Hans-Ulrich Obrist ed., *Gerhard Richter: The Daily Practice of Painting, Writings 1962-1993*, p. 119.
[138] Francis Alÿs, *Tornado - Milpa Alta*, 2000-2010.Video, high definition, projection, colour and sound.
[139] Sophie Calle, *Suite Venitienne*, 1980-1994. 55 photographs, 23 texts, 3 colour maps. Collection Mudam Luxembourg - Musee d'Art Moderne Grande-Duc Jean.

FIGURE 21 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. FOREGROUND: AI WEIWEI, *SURVEILLANCE CAMERA WITH PLINTH*, 2015, MARBLE. BACKGROUND: ANDREAS GURSKY, *HONG KONG, STOCK EXCHANGE, DIPTYCHON,* 1994, COLOUR PRINT (DIPTYCH), KUNSTMUSEUM WOLFSBURG.

Focusing on performance art and its documentation, the second critical categorization, "Risks to the body" (2) paid homage to those artists that have put their persona at risk in iconic performances and tested their and their publics endurance. Among them, a video of Yoko Ono's iconic performance *Cut Piece* (1968)[140] where she invited the audience to cut

[140] Yoko Ono, *Cut Piece*, 1964.Video of a performance by the artist at Carnegie Recital Hall, New York City on March 21, 1965. Filmed by the Maysles Brothers on 16 mm film (black and white, sound) and transferred to video, 8 minutes. Collection of the artist. In this work, Ono confronted the audience with their capacity for violent action. Totally exposed, yet dignified, she responded by maintaining a position of stoic vulnerability. "I was thinking about expressing how women are treated as well as how we can survive it" Ono has said in an interview with Miranda Sawyer (BBC) on the occasion of her retrospective at the Serpentine Gallery, London, in 2012.

away her clothes, featured alongside Chris Burden's (1946–2015) *TV Commercials* (1973-77), where footage of the artist crawling naked on broken glass appeared live on TV.[141] As philosopher Michael Feher later stated, the body in the performance art of that period had become "the actualizer of power relations and that which resists power."[142] In the same years, Bas Jan Ader's experimentations with failure and impossible tasks eventually lead him to disappear in the Atlantic ocean while attempting to cross it on a small boat in his *In the Search of the Miraculous* (1975)[143]. Marina Abramović risked her life by being suffocated as she was lying at the centre of her sculpture of a burning star.[144] In *Rest Energy* (1980), a performance by Abramović and Ulay, the latter pointed a bow and arrow at Abramović's chest, while the audience listened to their accelerating heart beats amplified through speakers.[145] More recently, ORLAN's surgical performances, in which she submitted her own body to surgery radically altering it in front of a camera, were broadcast live in museums worldwide. A performance that urged the public to overcome the shock and disturbing feelings of directly viewing surgeries.[146] For artists such as Abramović, Burden, and Ono taking physical or social risks in the 70s was an empowering technique to test their own limits and a ground for resistance and protest against physical, mental, and

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[141] The TV Commercials, 1973-77, film, colour sound.3 minutes 46 seconds American sculptor Chris Burden (1946–2015) gained in the 70s a reputation as the superhero of performance art through feats of extreme endurance, such as being shot in the arm or pulling live wires around his bare chest. About his TV Commercials, he has stated that they were a way to react against the "omnipotent stronghold of the airwaves".

[142] Michel Feher, "Of Bodies and Technologies", *Discussions in Contemporary Culture 1,* edited by Hal Foster, (Seattle: Seattle Bay Press, 1987), 161.

[143] Bas Jan Ader, *In Search of the Miraculous*, 1975. Installation/performance (unfinished). Documented by slides, an audio tape, invitation to the Claire S. Copley Gallery, sheet music of sea shanties, Bulletin 89. Philip Aarons and Shelley Fox Aarons collection.

[144] Marina Abramović, *Rhythm 5*, 1974. Performance, 1 ½ hours. Student Cultural Center, Belgrade. Abramović's instructions for the piece state: "I construct a five-pointed star (made of wood shavings soaked in 100 litres of petrol). Performance: I light the star. I walk around the star. I cut my hair and throw it into each end of the star. I cut my fingernails and throw them into each end of the star. I enter the empty space in the star and lie down." [Chrissie Iles, *Marina Abramović: objects performance video sound* (Oxford: Museum of Modern Art, 1995), 13].As she was lying down, however, the flames soaked all the oxygen and she passed out until member of the public rescued her.

[145] Marina Abramović and Ulay, *Rest Energy*, 1980. Performance for video, ROSC' 80, Dublin, 16 mm transferred to digital, with colour, sound. Marina Abramovic Archives. Running time: 4:05 minutes. Totally defenceless, Abramović described the performance as one of the most psychologically difficult in her life: *"*I was not in charge (…). It was a performance about the complete and total trust*".* Audio available on Moma.org. Accessed 20 January 2020, http://www.moma.org/explore/multimedia/audios/190/1976.

[146]Orlan, *Omniprésence*, 1993. Procedure involved sewing implants into Orlan's temple to create two lumps, and placement of implant into her chin through lifting her chin. ORLAN aimed to prove that science can overcome the limits of biology and substitute pain and decay with the possibility of a prosthetic persona. Her Carnal Art, emerged in the 1990s at a time of widespread use of plastic surgery, and the critical and artistic interest in the Post-Human. For Post Human art in the early 2000s see Francesca Alfano Miglietti, *Extreme Bodies: The Use and Abuse of the Body in Art,* (Milano: Skira, 2003).

social pressures. By submitting themselves to pain, danger, or discomfort artists were pushing not only their own endurance limits but also the audience's capacity to be a witness of, or even a partner in crime. By presenting such different performative practices alongside each other, we were interested in how the risks that were taken created in the public strong mirroring emotions of the performers' mental tension: a mix of excitement and discomfort. From a sociological perspective these works enabled the exploration of the dynamics provoked by edgework in an artistic context; the public is confronted with extreme emotions, and yet comforted by the idea of being in a gallery space.

The third critical categorisation, "publics at risk", focussed on the creation of 'risky environments': installations where artists have put their publics at risk through the creation of unsettling scenarios. An iconic example of this practice is Chris Burden's famous work *Samson* (1985), a structure where a 100-ton jack connected to a turnstile pushed two massive timbers against a museum walls: as each visitor entered the space through the turnstile, they could theoretically (or metaphorically) destroy the building.[147] We hoped to include this work in the exhibition, but the compliance with health and safety regulations made it practically impossible to re-produce it. We realised that presenting works that put the audience at physical risk was problematic, considering the vocation and safeguarding responsibility of the institution towards their public. We had to ask ourselves: what kind of emotions we would like the public to feel when encountering the artworks and we realised that "thrill" was not necessarily one of them: there was no point in traying to imitate what a fun fair or theme park would do. Instead, we opted for works that playfully or metaphorically invited the visitors to step out of their comfort zone. Among them was Gregor Schneider's *Die Familie Schneider* (2004), of which we showed a film documentation. The original installation transformed two traditional London terraced houses in two uncannily identical homes inhabited by two families of undistinguishable twins. Audience were allowed to enter and visit them, but only one (or two) at the time.[148]

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[147] Chris Burden, *Samson.* 1985, turnstile, winch, worm gear, leather strap, jack, timbers, steel, steel plates, dimensions variable. The work was firstly made for *Henry Art Gallery* at the University of Washington, Seattle. When Samsun was exhibited at the Newport Harbor Art Museum, the local fire service deemed it a safety hazard and disassembled it. The work now belongs to a private collector.

[148] Gregor Schneider, *Die Familie Schneider*, 2004. Commissioned by Artangel. Risk featured the filmic documentation of the piece.

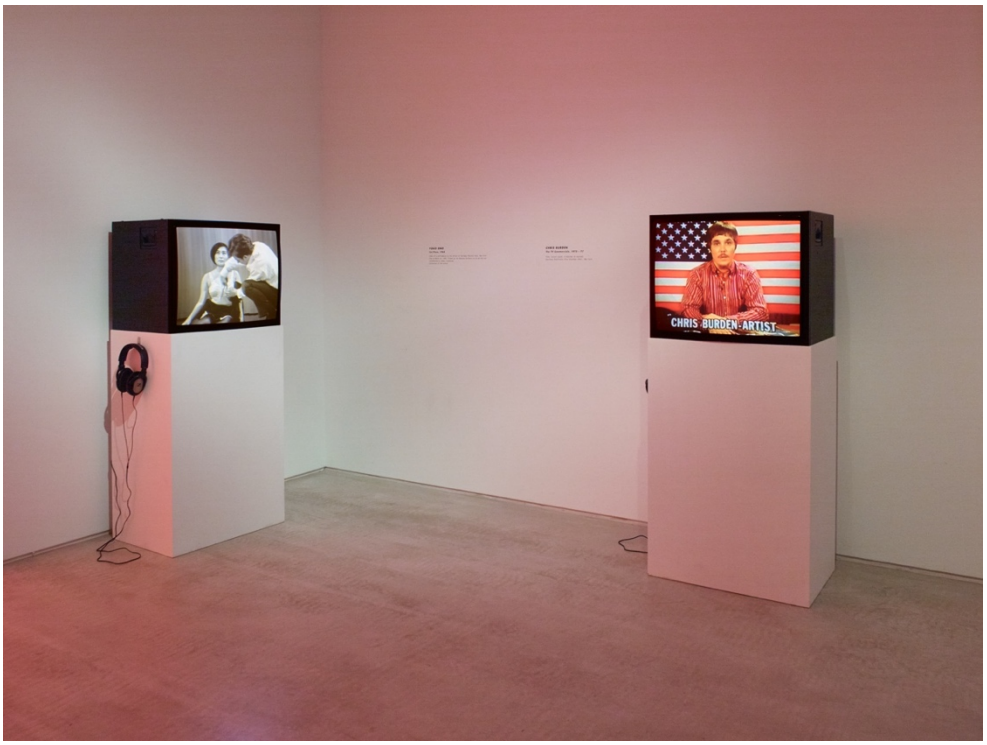

FIGURE 22 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. FROM LEFT TO RIGHT: YOKO ONO, *CUT PIECE*, 1964. VIDEO OF A PERFORMANCE AT CARNEGIE RECITAL HALL, NEW YORK CITY ON MARCH 21, 1965, FILMED BY THE MAYSLES BROTHERS ON 16 MM FILM (BLACK AND WHITE, SOUND) AND TRANSFERRED TO VIDEO, 8; CHRIS BURDEN, *THE TV COMMERCIALS*, 1973-77, FILM, COLOUR SOUND, 3:46.

If putting the audience at risk proved particularly challenging for the exhibition, we had not trouble in finding artworks to reflect on the fourth critical categorization, "the social dimension of risk". These artworks invited publics to reflect on what it means to be at risk in current society. They confronted the pervasiveness of risk as a diagnostic and management tool and its effects on politics, power and human resilience. Andreas Gursky's photographs of the stock market showed the business of an economical system based on financial risk.[149]The works of Harun Farocki (1944-2014) and Simon Faithfull (Figure 24) highlighted the contradictions of the 21st century obsession with predicting and preparing for disaster, by appropriating the training techniques of soldiers and firefighters.[150]

[149] Andreas Gursky, *Hong Kong, Stock Exchange*, Diptychon, 1994. Colour print (Diptych). Kunstmuseum Wolfsburg. I discuss this work in Chapter 7.
[150] I briefly discuss these works in Chapter 5. Simon Faithfull, *EZY1899,* 2012. Video installation. Harun Farocki, *Serious Games I: Watson is Down*, 2010.2-channel video, 8 minutes. *Serious Games III: Immersion*, 2009. 2-channel video, 20 minutes.

Controversial works by Santiago Sierra[151] and Arthur Zmijewski[152] confronted the viewer with human vulnerability in the absence of a justice system protecting individuals, a state that philosopher Giorgio Agamben conceptualised as "bare life".[153] Ai Weiwei's marble surveillance cameras (both puns on the Chinese government) and Peter Kennard's antinuclear manifesto, *Target London* (1985), showed how authorities easily manipulate and reverse the meaning of protection and threat for their own interest.[154] Chim↑Pom's *100 Cheers* (2011) was an homage to human resilience and solidarity. In this work, survivors of the Fukushima disaster filmed themselves performing KA IA (loud shouts used in martial arts to channel inner energy before a fight) as they re-enter their destroyed neighbourhood. Kris Martin's work *100 Years* (2004), a bomb due to explode in 100 years, confronted publics with the latency of risk, something that might seem innocuous may turn into a disaster in the future.[155] Finally, Eduardo Basualdo's installation, *The Island* (2009), transports the public into the house (and the mind) of the last man on Earth, in which the seed to rebuild civilisation is preserved.[156] The walls were reconstructed from a burnt-down house. Once inside, the viewer walked through a dark path that was both physical and mental, evoking the leap of imagination necessary to visualise a potential future. Simultaneously visionary and concrete, these artworks evoke the real actions and struggles of our present condition; where seed banks are created to protect the world's agricultural heritage from extinction (e.g., Svalbard Global Seed Vault in Norway) and governments' needs to make decisions about the disposal of nuclear waste that could still be harmful in 1000 years.

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[151] Santiago Sierra, *Polyurethane sprayed on the back of 10 workers,2004*. 4 Photographs. Santiago Sierra often hires specific groups of people e.g. immigrants from a particular country or sex workers to engage in mundane, degrading or seemingly dangerous tasks, thus instigating a sense of guilt in the public.

[152] Artur Zmijewski. *Repetition,* 2005. Film, 39 min. Zmijewski's filmed social experiments where participants are put in uncomfortable physical, psychological or political situations to explore power and oppression in society. *Repetition* recreates a infamous psychological experiment at Stanford University in 1971, where students took on the roles of guards and prisoners and lived in a mock prison. Just as in the original trial, Zmijewski's re-creation fell apart after a few days, as tension mounted and some of the volunteers decided to leave. Discussing this artistic rendition of his own experiment, psychologist Philip Zimbardo reported that one of the men who had played a guard had written to him in distress: "at the end of the experiment I shaved all my hair in order to clean up the dark and evil side of myself." Personal email communications, June 23, 24, 2005, reported in Philip Zimbardo, *The Lucifer Effect*, (London: Penguin, 2011).

[153] See Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford: Stanford University Press, 1998).

[154] Ai Weiwei, *Surveillance Camera with Plinth*, 2015. Marble. Ai Weiwei, *Study of Perspective,* 1995-201. 40 prints. Peter Kennard. *Target London, 1985* set of 18 posters. I discuss this work in Chapter 5.

[155] ChimPom *100 Cheers,* 2011. Video 10.30 minutes. Available online. Accessed 20 Jaunary 2020, https://www.pbs.org/video/frontline-100-cheers/.

[156] Eduardo Basualdo, *The island,* 2009. Mix media installation, MAC Lyon.

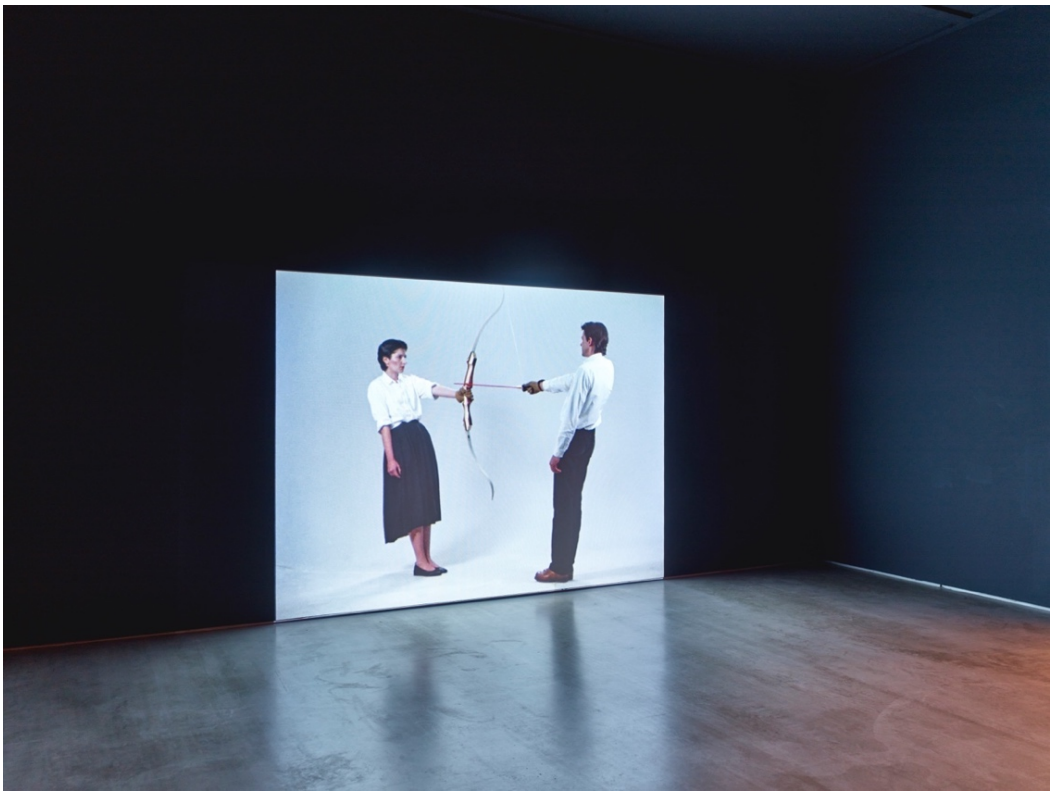

FIGURE 23 *RISK*, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY. MARINA ABRAMOVIĆ AND ULAY, *REST ENERGY*, 1980. PERFORMANCE FOR VIDEO, ROSC' 80 DUBLIN, 16 MM TRANSFERRED TO DIGITAL, WITH COLOUR, SOUND © OF THE MARINA ABRAMOVIC ARCHIVES, 4:05.

The exhibition *Risk* was an opportunity to explore how artists have keyed into our fears and anxieties, played with the unpredictable and provided an alternative space for reflecting on how life today is governed through risk. By helping us understand some of the logics of risk that underpin contemporary society - the fluctuating oppositions of victim and perpetrator, protection and threat, anxiety and recklessness, these artworks enable us to reflect on what it means to be at risk as opposed to taking risks. Nevertheless, they prove that these two conditions are nothing but opposite sides of the same coin. As voluntary risk-taking implies danger, to be at risk also means to take danger as a forced condition; in turn, the need to react to a forced condition of danger demands an act of risk-taking. From depictions of disasters to extreme performance art, from precarious sculptures to chilling installations, from artistic responses to real threats to artists appropriating risk techniques in their work, the exhibition emphasised the importance (and difficulties) of taking responsible risks in a world of uncertainty.

Heather Phillipson's work (presented in the introduction to this thesis) deals with the strata of mediatised and real-life threats, stimuli and paranoia that life today implies. In it she spins these into a flux of consciousness that toys with empathy, emotions and humour.

Through the artist's lens (literally and metaphorically), one may also re-appropriate the catastrophic narratives to which they are exposed through the media and the daily tasks of living in a physical environment that constantly reminds us of the risks that we may face. The work, may represent a stimulus to transform our understanding of such a universe of warnings into an intimate, ironic and personal strategy for resistance. One that does not dictate what and how we should do, but rather allows us to be vulnerable and aware that something bad may or may not happen.

In 2019 the situation has become even more sympathetic towards risk. Over the last five years, a large number of new publications, exhibitions, and symposia have finally initiated a reflective process on the particular intellectual climate surrounding risk within an artistic context.[157] Even if only a few do mention the word risk, artists are engaging with ecology, climate change, posthumanism, economic disparity, terrorism, nuclear culture and artificial intelligence. At the Venice Biennale 2019 the Lithuanian Pavilion won the Golden Lion for *Sun & Sea* (*Marina*, 2019), an opera about climate change by Lina Lapelyte, Vaiva Grainyte and Rugile Barzdziukaite demonstrating the art world sympathy towards the urgent call for environmental awareness.[158] During the same Biennale, however, a fishing boat where 1100 Libyan immigrants had died in 2015, was turned into an art installation and became the backdrop for art crowd selfies.[159] The criticism that this work received compelled to face the art world's privilege and hypocrisy in the way it prays on real life tragedies unsensitively and to create expensive artworks.

Other initiatives however, have maintained a more involved approach to real calamities. An *Artist at Risk* project is travelling the world in support of artists forced to flee or hide from violent regimes and injustices.[160] In Fukushima, Japanese and international artists entered the exclusion zone in 2015 and made new works for *Don't Follow the Wind*, an exhibition that still remains inaccessible to the public due to its 'contaminated' location. The deliberate choice by the artists and curators to host the exhibition in a dangerous place has nothing to do with putting public at risk, but rather with an invite to consider the

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[157] See for example *Damage Control* at the Hirschhorn Museum, 24 October 2013 to May 26, 2014; 9th Taipei Biennial, *The Great Acceleration: Art in the Anthropocene,* 13 September to 4 January 2015. In addition to these, a number of smaller curatorial and artists' projects have recently responded to extrinsic conditions of emergency and risk management (I.e. global warming, nuclear disasters, terrorism and so on).

[158] "Opera Masks Climate Crisis in a Gentle Tune" titled the New York Times. Accessed 20 January 2020, https://www.nytimes.com/2019/07/14/arts/music/sun-and-sea-lithuania-venice-biennale-review.html.

[159] The work in question is *Barca Nostra (our boat),* 2019 by Swiss German artist Christoph Büchel. For press report about the work see The Art Newspaper "Fierce debate over Christoph Büchel's Venice Biennale display of boat that sank with hundreds locked in hull", May 2019. Accessed 20 November 2019. theartnewspaper.com/news/christoph-buechel.

[160] *Artist at Risk.org*. Accessed 20 January 2020.https://artistsatrisk.org/about/?lang=en

irrepresentability, and yet imaginative power, of radiation and its disastrous effects.[161] In the UK, the Nuclear Culture research network produces exhibitions and symposia where artists and cultural practitioners discuss the materiality, aesthetics, and challenges of living with nuclear power. [162]

In the meantime, risk has been a practical issue for art institutions in charge of preserving the past and now facing an endangered future. As war has destroyed or spoiled some of the most important museums in the middle east, important monuments, such as Palmyra's Arch of Triumph, have been re-built using 3D printing technology and exhibited around the world to raise awareness. Responding to this climate, three leading European museums, Tate Liverpool, the Museum of Modern Kuntz, and the Centre Pompidou, co-organised a major exhibition about the end of art. "What if art were to disappear?"[163], asked the curatorial statement at the beginning of the exhibition. As it introduced the public to visual documentation of the lost monuments destroyed by human violence, it invited them to consider remembrance as a powerful antidote to facing an uncertain future. With a similar disposition, author Jacques Attali, co-curated an exhibition at the Louvre inspired by his book *A brief history of the future* where he compared wandering through ruins to forecasting. In museums, he wrote, "we experience the elasticity of a remembrance that is carrying us towards a future whose foundations are being laid today".[164]

Furthermore, as the *Art of Risk* symposium at Leeds University recently pointed out, the art institutions of the 21st century are also increasingly conditioned by the management of risk, besides the issue of conservation. They have to deal with increasingly restrictive safety regulations and maintain a fine-tuned balance between enabling artists to take risks and

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[161] *Don't Follow the Wind.* Various venues, Fukushima & Watari Museum, Tokyo, Japan. Opened October 2019. Curated by Kenji Kubota, Eva and Franco Mattes, and Jason H. Waite. Initiated by Chim↑Pom. The artist are Ai Weiwei, Chim↑Pom, Grand Guignol Mirai, Nikolaus Hirsch and Jorge Otero-Pailos, Meiro Koizumi, Eva and Franco Mattes, Aiko Miyanaga, Ahmet Öğüt, Trevor Paglen, Taryn Simon, Nobuaki Takekawa and Kota Takeuchi. For a review of the exhibition see Frieze.com. Accessed 19 November 2020. https://frieze.com/article/dont-follow-wind.

[162] "Material Nuclear Culture", exhibition, KARST Gallery, United Kingdom, 17 June to 13 August 2016. Curated by Ele Carpenter with David Mabb, Alison Craighead, Nick Crowe, Susan Schuppli, Susan, Kota Takeuchi and Erika Kobayashi.

[163] *An Imagined Museum: works from the Centre* Pompidou, Tate and MMK collections. The exhibition was presented consecutively at Tate Liverpool (20 November 2015 – 14 February 2016), MMK Museum für Moderne Kunst Frankfurt am Main (24 March 2016 to 11 September 2016), and at Centre Pompidou-Metz (21 October 2016 to 27 March 2017).

[164] Jennifer Beauloye, Michel Draguet, and Pierre-Yves Desaive. *2050, a Brief History of the Future, 2015*, (Paris: Musee Du Louvre, 24 September 2015 to 4 January 2016 and Brussels: Musées royaux des Beaux-Arts de Belgique, 11 September 2015 to 24 January 2016), exhibition catalogue, 12.

protect their publics.[165] Moved by similar concerns, the International Museums Association held a conference on risk in 2017, where professionals asked each other how to achieve healthy risk-taking in their institutions.[166] Confronting reputational risks stemming from bad publicity, Museums today have to make sure their funders are not involved in exploitative and violent businesses.[167] In this vein another emphasis is on trying to reduce carbon footprints.

In this context, where risk is changing the way artists create and how publics interact with their work, the need for sustained research into how this is operating and manifesting is clearly needed. In different ways these artistic and curatorial strategies articulate a pervasive condition of unease, and a desire to engage with integrity with the historical and social challenges of the recent years, often taking personal risks and or interrogating mainstream narratives and representations of risk in the world. These practices, however, articulate experiences that travel within the circuits and publics of a "global" art world, is rooted in the "asymmetric exchange" between cultures, money and opportunities. [168] Similarly, art history is only beginning to become de-centralised, to free itself form "the western canon", and to catch up with the efforts of artists and communities facing risks and disasters around the world and who cannot access the channels, expertise and recognition of an artworld that remains exceptionally elitist. The same criticism may apply to this dissertation, which mostly engages with artists that, even if coming from different regions across the world, belong to that *elite* that exhibits across the channels of mega biennials, exhibitions and art fairs. Never the less, it is this very exposure to the largest publics that enables us to see the scale of possibility that the encounter with art offers in articulating our relations to risk. It was after all following high profile international platforms such as Documenta 11 and the Venice Biennale in 2015 (both curated by Oki Enwezor) that artistic and cultural institutions have become increasingly more aware and sensitive to the temporalities, histories and

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[165] See for example Maria Balshaw "Provocation #10: Maria Balshaw on cultures of risk management", Art of Risk Symposium, Leeds University, 26 June 2014. *Web.* Accessed 20 January 2020, https://arts.leeds.ac.uk/artofrisk/

[166] MuseumNext Conference. Melbourne February 2017. See for example Jervais Choo "Film: Risk taking – choice or necessity?", *museumnext.com.* Accessed 20 January 2020, https://www.museumnext.com/article/cultural-precipice-risk-taking-choice-necessity/. See also "MuseumNext Melbourne 2017 | call for conference proposals". *culture360.asef.org*.Accessed 20 January 2020, https://culture360.asef.org/opportunities/museumnext-melbourne-2017-call-conference-proposals/.

[167] See the recent scandals involving BP and the Sackler Family that have led TATE and other important Museums to drop their sponsorship.

[168] For the concept of "asymmetrical exchange" see Monica Juneja, "A very civil idea … Art History, Transculturation, and World-Making – With and Beyond the Nation". *Zeitschrift für Kunstgeschichte*. 81.4(2018): 461-485. Retrieved 23 Sep. 2020, from doi:10.1515/ZKG-2018-0036

modus operandi of artists in Africa, South East Asia or South America.[169] Similarly, if risk is one of the few grand narratives left from modernity to the contemporary globalised world, and one that we should attempt to disentangle, the aesthetic of risk as a field should operate by negotiating this interrelation between local art histories and the global art world, between overarching narratives of risk management and local challenges, between public and personal perceptions. A PhD dissertation would not be sufficient to undertake such an endeavour, but it is a contribution to it, based on a personal selection of mainstream art that I have encountered and insistently reflected on concerning my reading on risk.

At this stage, it is essential to define the parameters of this research and eliminate confusions. I will not attempt to identify the riskiest art in history, nor will I debate in detail the variety of artistic experiences that I have described above. Instead, I will focus on the territory where artistic practice meets, and appropriates, the visual vocabulary of risk: artworks where risk techniques are used as an artistic medium, and not to strictly manage risk. Warnings, instructions for survivals, drills, even predictive modelling constitute the reoccurring vocabulary used to represent and manage risk today. I shall therefore focus on how these risk techniques (or representation styles) have migrated from posters to paintings, from drills to video art, re-inventing how risks are represented and negotiated in visual culture. Orienting the research is a curiosity in finding out which kind of visual strategies are adopted to steer the public opinion towards the perception of a situation as dangerous. What techniques are used to make risk manageable? How is probability visualised in art and visual culture? Answering such questions throughout the following chapters may hopefully generate a greater understanding of how one may criticise or transform our contemporary risk landscape and re-appropriate its scenarios. At this stage it is important to define the parameters of this research and eliminate confusions. I will not attempt to identify the riskiest art in history, nor will I can debate in detail the variety of artistic experiences that I have described above. Instead, I will focus on the territory where artistic practice meets, and appropriates, the visual vocabulary of risk: artworks where risk techniques are used as artistic medium, and not to strictly manage risk. Warnings, instructions for survivals, drills, even predictive modelling constitute the reoccurring vocabulary used to represent and manage risk today. I shall therefore focus on how these risk techniques (or representation styles) have migrated from posters to paintings, from drills to video art, re-inventing how risks are represented and negotiated in visual culture. Orienting the research is a curiosity in finding out which kind of visual strategies are adopted to steer the public

[169] See Smith, Terry. "Contemporary Art and Contemporaneity." *Critical Inquiry* 32, no. 4 (2006): 681-707. Accessed September 23, 2020. doi:10.1086/508087.

opinion towards the perception of a situation as dangerous. What techniques are used to make risk manageable? How is probability visualised in art and visual culture? Answering such questions throughout the following chapters may hopefully generate greater understanding of how one may criticise or transform our contemporary risk landscape and re-appropriate its scenarios.

2.4 Conclusion

In this chapter I have argued that even though risk manifests itself aesthetically in the collective imaginary through images, performances, and warning signals, the attempts to address it from an aesthetic perspective are sparse. The study of the aesthetic dimension of risk cultivates the re-appropriation of the critical tools necessary to recognise, disentangle, and reflect on the role of images and art in today's risk society. Its interests reach beyond the concerns with images of threat and the performativity of risk-taking in art and popular culture, to unveil the structural strategies behind the management of risk and their visual impact in the world. These concerns are not so much with violence and alarms, but rather with the politics of safety and reassurance and with mathematical and algorithmic visualizations of a world that desperately attempts to reduce uncertainty.

What if risk was a designed response, a creative method that we have invented to deal with the unknown future? As in many other fields of human knowledge, art is the expression of human creativity. As I have demonstrated artists have taken risks in many ways — embracing chance and unpredictability, pushing themselves into danger, and responding to the social dimension of risk. Through representation and appropriation artists have contributed to constructing aesthetic experiences where publics have encountered risk. This research will not emphasise risk-taking as an artistic tactic, but draw attention the representations of risks and their negotiation in art and visual culture: it focuses on artworks that illuminate the social dimension of risk.

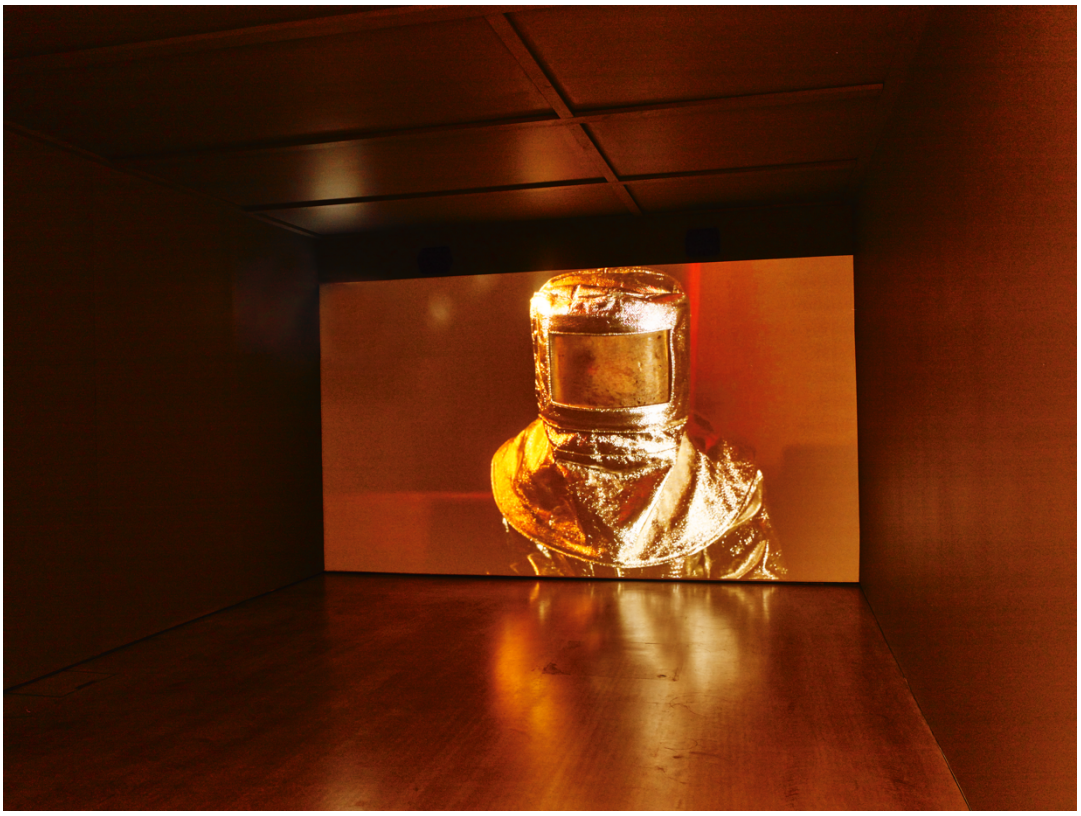

FIGURE 24 RISK, INSTALLATION VIEW AT TURNER CONTEMPORARY, 2016. SIMON FAITHFULL EZY1899, 2012. VIDEO. PHOTO STEPHEN WHITE © TURNER CONTEMPORARY.

3 CHAPTER. Visualising Risk: The Construction of Safety

FIGURE 25 HANS SCHLEGER (ZERO), *NATIONAL SAFETY WEEK* POSTER, 1937. LONDON TRANSPORT MUSEUM. DETAIL.

3.1 Introduction

This chapter will explore how "risk messages" have entered the visual imagination of the first half of the 20th century, introducing the belief that safety could be achieved through appropriate behaviour. It traces the genealogy of risk communication through the analysis of the warnings, allegories and instructions produced as a part of the Safety First movement in the UK between the 1920s and 1930s. Considering road safety initiatives, wartime posters, and work accident prevention campaigns, it will identify the "grammar" of risk communication and its aesthetic features.

The choice of focussing on this particular period demands a clarification. Historian Arwen Mohun has recently demonstrated that a vernacular culture of risk has always existed - from the attempt to contain epidemics, to rudimentary methods of fire-fighting and prevention.[170] The scale through which risk has permeated our visual language,

[170] Arwen Mohun, *Risk: Negotiating Safety in American Society*, (Baltimore: Johns Hopkins University Press, 2013). The examples in Chapter 1 of this thesis are also instances of vernacular risk.

however, has become especially evident at the turn of the 20th century, with the advent of mass communication and the increase of accidents due to new technologies and methods of production. The war efforts of both world wars, on the other hand, helped develop the techniques of state propaganda, which involved large doses of warning messages to mobilise the masses. These methods, in turn, were exploited by capitalism for marketing purposes. Historian Mariel Grant argues that at this time the words advertisement, publicity, propaganda and education were used interchangeably.[171] Universal suffrage, literacy increase and the new means of mass communication were increasing the power and importance of an average citizen in a democracy.[172] At the same time, the belief that the masses were manoeuvrable, reinforced by new developments in social psychology, infused propaganda, advertising, and public health with a new theoretical basis for their campaigning strategies. [173] The emphasis on safety, and how to achieve it — at work, at home, in the street, pervades the visual imagery of the turn of the 20th century, evolving in parallel with the changes in legislation that have brought about the infrastructure of risk as we know it today.

At the turn of the 20th century in Britain, the need to campaign for public safety became a priority. The circulation of cars travelling at unprecedented speeds combined with a lack of road regulations lead to many casualties. Workers in the factories were killed by inappropriate use of machinery. As a large part of the younger population went to war, and civilians were killed in airplane attacks, factory owners and the government could not afford any further losses to the workforce. A need for risk messages arouse, prompting all sort of initiatives for hygiene, food rationing, appropriate dressing, venereal diseases prevention or mindful driving. Even "calm" was promoted via public information campaigns.[174] Designers were invited to use their imagination to create pictures for public displays in the streets, factories, shops and stations. Booklets were distributed and posters cheaply printed associating snappy slogans and eye-catching images. With the aim being to reduce casualties and accidents, these images attempted to change social habits and behaviours, by instructing people how they should 'perform' in public and private spaces.

This chapter will focus on these safety images: posters or signs designed to teach safety to the masses by presenting dangers as manageable risks. I will show how safety images

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[171] Mariel Grant, *Propaganda and the Role of the State in Inter-War Britain*, (New York: The Clarendon Press, Oxford University Press. 1994).14.
[172] Mariel Grant, *Propaganda,* 12
[173], William Macpherson, *The Psychology of Persuasion,* (London : Methuen & Co, 1920).
[174] This is an allusion to the famous poster *Keep Calm and Carry On*, (1939) produced by the Ministry of Information in the UK. For the legacy of the poster see: Owen Hatherley, *The Ministry of Nostalgia: Consuming Austerity*, (London: Verso, 2017).

have progressively forged an international vocabulary of instructions and signage that rejected terrifying imagery in favour of bold colours, geometry and recognisable gestures. These "sanitised" portraits of danger served as the products of a risk management mentality, since they were able to "reduce danger into a calculable formula".[175] By suggesting solutions rather than insurmountable problems, and representing accidents as lessons to be learned, they generated faith and confidence in the ability to manage and mitigate risk against the odds of total uncertainty (rather than fear of it).

FIGURE 26 ARNOLD ROTHHOLZ, *DRIVERS BE ALERT!* NATIONAL SAFETY WEEK POSTER, 1930.

[175] For a full version of this definition of risk see chap.1; Mitchell Dean, "Risk, Calculable and Incalculable", Deborah Lupton, ed., *Risk and Sociocultural Theory: New Directions and Perspectives*, (Cambridge: Cambridge University Press, 1999) 131.

3.2 Visibility

FIGURE 27 HANS SCHLEGER (ZERO), *SAFETY WEEK*, NATIONAL SAFETY WEEK POSTER, 1937. LONDON TRANSPORT MUSEUM.

The beginning of the 20th Century was a crucial period for the aesthetics of risk; designers discovered the power of expression and symbolism and deployed it with unprecedented scale, using modernist means to communicate risk. Abstract elements and block colours aimed at stimulating drivers to keep an attentive eye on the road ahead, and at the same time they instigated a symbolic idea of visibility that metaphorically connected to the presence of risk and our ability to see it. Moreover, the need to highlight danger urged the development of conventional features and attention-grabbing symbols that became recognisable and understandable: the seeds for what would later become the visual language of warnings were all sewed during this time.

The campaign for road safety, one of the first and long-standing initiatives directed to managing risks, focused on changing people's awareness and habits. It is a pioneering example of the use of symbols, signs and geometries in the visual communication of risk. In 1916, volunteers around London collected accident reports with the intention to campaign for safer driving and pedestrian caution. They soon organised under the umbrella of the Safety First Council which in 1941 became a national organisation, the Royal Association for the Prevention of Accidents (RoSPA).[176] In these first stages, safety on the road was considered a civilian matter that should be illustrated with eye catching clarity and persuade the viewers with reasonable rhetoric. Emphasis was given to the ability to recognise danger but fear and apprehension were not the main affective driving forces. Instead, conventional and recognisable symbols acted as visual reminders of the perils lurking ahead.

[176] RoSPA is active to this day as a safety campaigning and training body.

Not surprisingly this was the time when road warning signs such as the red triangle began to be systematised and actively introduced. In 1903, the Motor Car Act had published recommendations to local authorities for the introduction of four safety road signs and a red open triangle was the one designated to indicate warning and caution.[177] The reasons for choosing a red triangle for warning are not clear, however triangular signs were already in use in Scandinavian countries apparently because of their affinity to the letter A — standing for *Achtung!* or *Advarsel!* ("warning" in Danish and Norwegian).[178] As early as 1917, the Safety First Council reproduced the recently introduced sign as a logo and the pictogram of a triangle inside a circle appeared in all their public information material. The adoption of the triangle by the Safety First campaign was instrumental in disseminating the road sign among the wider population; the attempt to instruct citizens how to interact with it. This synergy between visual material, urbanistic features and legislation, all working together towards the construction of safety, is an important innovation that the awareness and management of risk has brought about in the first half of the 20th Century UK.

RoSPA did not just promote the road-sign, but also the logic behind its design and introduction — i.e. the need for a universal and versatile symbol to communicate dangers in both visual communication and the built environment. Fitting with their policy to avoid a disheartening imagery, the triangle showed the British population that warning messages did not need to be similar to scaremongering war propaganda. On the contrary, they just had to be clear and "neutral", just like today's signage. In a way, RoSPA's approach was more aligned with the Isotype alphabet that Otto Neurath was developing in Wien during the same time - a universal picture language made of simplified and highly recognisable shapes. As explained in Neurath's own words,

> Clarity and simplicity is its chief aim. All irrelevant detail is omitted, the same symbols occur over and over again so that the reader quickly recognises them, colour creates interest, but it's used always with meaning and not merely as a decoration, attention is paid to arrangements which will present easily remembered patterns.

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[177] Great Britain Parliament. House of Commons. *The Motor Car Act, 1903*. (Cambridge: Proquest LLC, 2007). See also Richard K. Morris, *Roads - Archaeology and Architecture*, (Stroud: Tempus Publishing Limited, 2005). See also Alfred Harmsworth, Viscount of Northcliffe, *Motors And Motor-driving.* (4th ed. London: Longmans, Green, and co., 1906).

[178] For the history and semiotics of road signs see Martin Krampen, "Icons of the road", *Semiotica*, 43.1-2 (2009): 1-204. Retrieved 21 November 2019. See also Cándida Castro and Tim Horberry, eds, *The Human Factors of Transport Signs.* (Boca Raton [Fla.] ; London: CRC, 2004).For the use of triangular road sings in Denmark, the Danish Roads and Bridges Museum website, now closed, contained a various example of such signs and reference to their origins. Unfortunately, the Museum website is no longer available, but info is available here: Viator, "Who actually invented hazard warning signs as we know it?". Sabre-roads.org.uk. 16 July 2013. Accessed 27 November 2019, https://www.sabre-roads.org.uk/forum/viewtopic.php?t=31606.

> This new instrument is used to make statements and tell stories which are not simply of background value but are themselves (an?) essential part of the education of modern citizens.[179]

According to this logic, the triangle, became an omnipresent symbol that communicated risk through non-verbal, anti-emotive means. It was just one iteration of a wide spread interest in non-verbal visual communication; the product of an international movement of rationalisation and standardisation directed towards the management of risk.

FIGURE 28 EDWARD MCKNIGHT KAUFFER, *NATIONAL BE ON GUARD*, NATIONAL SAFETY WEEK POSTER, 1930.

The ubiquity of the triangle, associated with the unmissable catch-phrase Safety First (first used in America in 1910) helped spread the belief that safety was an indispensable priority, and that it was everyone's responsibility to seek it. In later years, the red triangle became internationally recognised, and by 1939, following the Geneva protocol, it achieved official European status as the road-sign indicating danger.[180] In the same year, yellow on a blue background, the triangle became the official logo of the American Civil Defense. It is an emblem of the long term interlink between pictograms, warnings and the visualization of risk. However, there was more to the triangle besides its recognisability. The 'neutrality' of

[179] Lancelot Thomas Hogben, Joseph A. Lauwerys, Marie Neurath and Otto Neurath. *Visual History of Mankind.* (London : Adprint, 1948). Back Cover.
[180] The UK road and motorway signage system designed by Jock Kinnier (1917-1994) and Margaret Calvert (1936-) between 1957 and 1967 conformed to the 1949 Geneva Protocol of using triangular signs to warn drivers, circles to issue commands, and rectangles to relay information. The Committee decided to adopt the continental style of using symbols rather than words on the road signs.

the pictogram, in fact, did not prevent striking aesthetic results, and the same symbol also featured in some memorable posters by Hans Schleger (1898-1976) (Figure 25 and Figure 27), Edward McKnight Kauffer (1890–1954) (Figure 28) and Hans Arnold Rothholz (1919–2000) (Figure 26).[181] Naturally, the association between the eye with the triangle common in these posters was an invitation to watch out for the sign. The overall message, however, was broader: it aimed at changing the way people would see the world around them, their ability to see invisible dangers. The importance of these posters transcends the need to feature the road sign and positions road Safety First campaign in relation to international modernism and its impact in the visual communication of safety. As we will see, it allowed for extraordinary formal solutions in a time when Abstract art, Surrealism and Modernism were becoming the dominant European artistic languages.

As Avant-garde artists were experimenting with the intersection of geometry and colours, the red triangle perhaps made its most famous appearance in El Lissitzky's (1890–1941) posters *Beat the Whites with the Red Wedge* (1919) (Figure 29). In this poster, El Lissitzky combined the lesson of Suprematism with the political symbolism required by the Russian Revolution — the triangle standing for the subversion that Bolshevik revolutionary forces brought against the power of the Tsars. By the end of the 1930s, the experimentations of Constructivism, Vorticism (of which Schleger was an affiliate), Abstraction, and Surrealism had already been turned into norms for successful graphic design.[182] A well-known poster design manual from the 1930s clearly explicates how illustrators had an important lesson to learn from abstract art, privileging expression over realism. The book also presents several examples of "attention-getting symbols" to exemplify the basic principles of layout Figure 31 and Figure 32),

> He (the designer) must work in symbols, combinations of lines and colours which almost speak a primitive language, which often without the realization of the public, produce an effect by the fundamental appeal to certain mental moods and impulses. Many posters depend very little upon words, but carry their message to the child, the foreigner and illiterate, as well as the educated adult.[183]

Abram Games' road safety posters, reproduced in the following pages (Figure 30 and Figure 33), can be considered as examples of this kind of style, where lines, geometric figures, and block colours have both an expressive and symbolic function. *Visibility* (1946), is a striking

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[181] RoSPA "History of the Royal Society for the Prevention of Accidents". *RoSPA.com.* 5 May 2018, https://www.rospa.com/About/History. See also Paul Rennie, *Safety First: Vintage Posters from RoSPA's Archive*, (Glasgow, Scotland: Saraband, 2015).
[182] See also Rennie, *Safety First.* 4.
[183] Duke Wellington *The Theory and practice of Poster Art*, (Cincinnati, Ohio: The signs of the times publishing company, 1934).

geometric composition where triangular light beams diverge from two perfectly circular car headlights (Figure 33). Contrasting with an electric blue background, they direct the beholder's gaze towards the top corner of the image and back to the centre, where other dark diagonals irradiate from a stylised eye, accentuating the dynamism of the image. Learning the lesson from abstract art, Games' poster alerts the eye on a literal level: bright colours and geometric figures are visible at a distance and demand attention without requiring interpretation. On the other hand, the poster epitomises a metaphorical lesson about risk and visibility: risks are the dangers that we *see* coming. Similarly, in the poster *Take Care when driving, be ready for the unforeseen* (date unknown) (Figure 30) a choreography of colours and arrows pointing into different directions is used to visualise the idea of being at a crossroad with several options opened. The motto, here, starts from the circumscribed act of driving to a more universally appealing idea of 'readiness'.

FIGURE 29 EL LISSITZKY, *BEAT THE WHITES WITH THE RED WEDGE*. SOVIET PROPAGANDA POSTER, 1919.

FIGURE 30 ABRAM GAMES, *TAKE CARE WHEN DRIVING, BE READY FOR THE UNFORESEEN*, DATE UNKNOWN. ISSUED BY ROSPA, © PAUL RENNIE

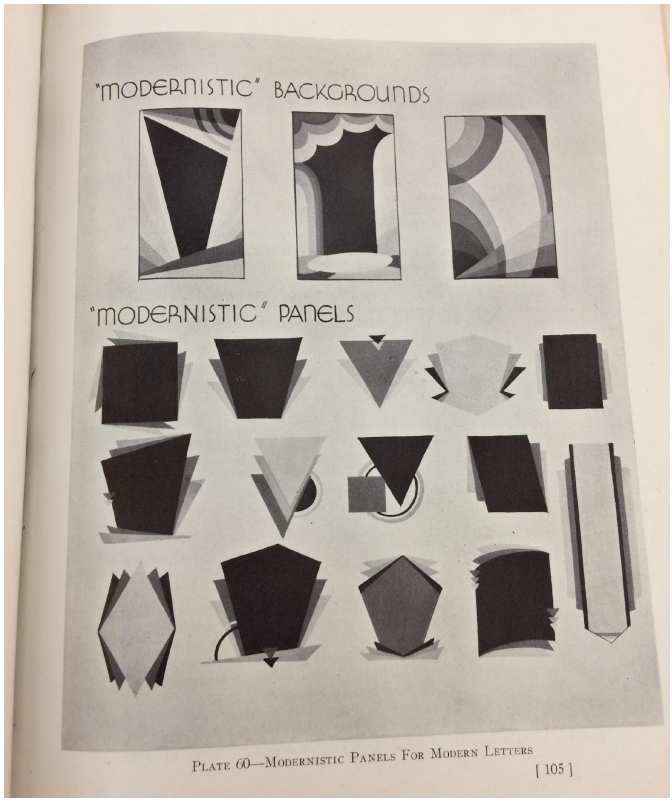

FIGURE 31 DUKE WELLINGTON, *THE THEORY AND PRACTICE OF POSTER ART*, 1934. PAGE 105

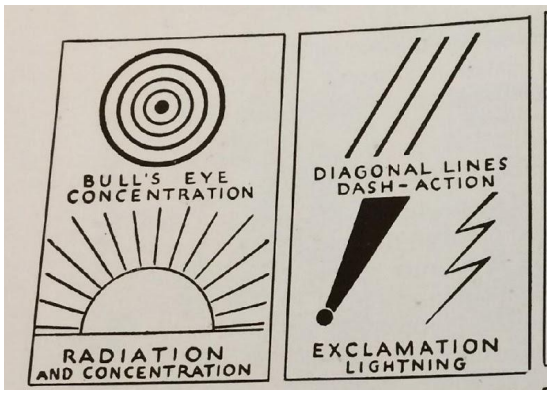

FIGURE 32 DUKE WELLINGTON, *THE THEORY AND PRACTICE OF POSTER ART*, 1934. DETAIL

FIGURE 33 ABRAM GAMES, *VISIBILITY*,1946. ISSUED BY ROSPA, © PAUL RENNIE

3.3 Cultivate your Safety Sense

Geometry and simplified form, were not the only artistic influences that designers adopted in the early days of road safety. Edges and bright colours were (and are) ideal for distance and speed recognition, and could translate the *Avant-guard* interest in non-representational forms into something useful and functional. Posters designed for pedestrians could enjoy more freedom by relying on psychological research revealing the power of different kinds of tropes. Some appropriated old allegories but imbued them with new meanings, in order to cultivate visibility as an internal capacity independent from the actual presence of vision.

"Wait, count 15 slowly before moving in the blackout", advises the iconic poster designed by George R Morris in 1938 for the Safety First Council (Figure 34). A feminine profile mysteriously emerges from the shadow: pale skin, red lips and eyes shadowed in darkness. Underneath, a foot in set in a high heel shoe raised as to advance ahead, the white skin contrasting with the dark shoe, a spot light forming a theatrical circle in the surrounding obscurity. A dashed red line, traced in a curvilinear trajectory, culminates in an arrow pointing forward: as though guiding the eye, it connects the two focal points of the image instigating a top-down reading that puts every element, including the text, into a consequential sequence. This orchestration of visual elements facilitates the poster's clarity offering a message at the semantic level. "Wait!" is purposefully positioned at the top, both a synthesis and an imperative suggesting the passer-by slow down. The suspended, disembodied head, is an evocative reminiscence of Dalí's famous *Le Sommeil*, the Sleep (1937), which charges the image with psychological and subconscious allusions. [184] The suggestion to count is practically spelled out from the red lips like the voice of an internalised consciousness. "Slowly", also in red, suggests the pace of the action, as though underlining the connection between intention and execution. Finally, the white circle around the advancing foot indicates the unwritten advice to take a personal flashlight as aid into the blackout peregrinations.

[184] In 1936 there was a pioneering exhibition of Surrealist art at the New Burlington Buildings. The reference to Dalí here is not proven, but the similarities are striking. See: International Surrealist Exhibition, and New Burlington Galleries. *The International Surrealist Exhibition.* (London: New Burlington Galleries, 1936). Rennie, *Safety First*, has written about the impact that Surrealist art has produced in the designers working at the time for public safety campaigns.

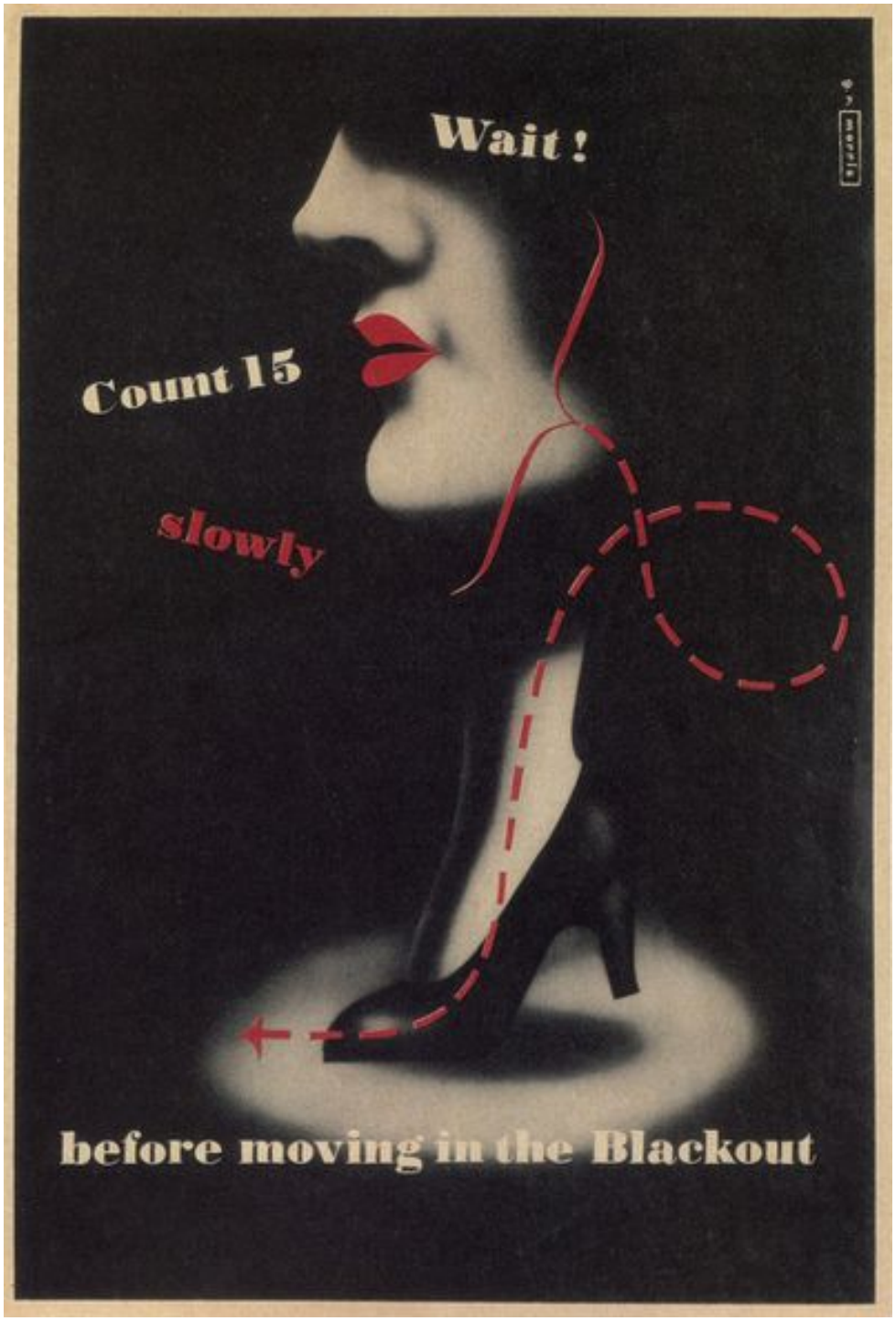

FIGURE 34 G R MORRIS, *WAIT! COUNT 15 SLOWLY BEFORE MOVING IN THE BLACKOUT*, ISSUED BY THE NATIONAL 'SAFETY FIRST ASSOCIATION', 1938. IMPERIAL WAR MUSEUM COLLECTION.

This visual composition by Robert G. Morris, a practically unknown designer from America (little is known about him after WWII) is a perfect execution of the mainstream advertising criteria of its time, and one of its finest examples. Visual impact and clarity of message are perfectly achieved by deploying the newly discovered theories of visual persuasion.[185] Yet, the image combines aesthetics of both commercial advertising and war propaganda for a new end — reducing road accidents during blackout hours, when all the lights in the city were instructed to be switched off to deceive the bombarding enemy. Robert G. Morris, responded to this need with an ambiguous image, that not only communicated the risk but also presented it as an attractive possibility. Let us now consider why.

First of all, the poster suggested what was appropriate to do when crossing the street. It stimulated a safe *habit* by turning an everyday action (or gesture) into an instruction, the iteration of a guiding principle that placed causes and consequences together. Eyes that do not see require carefulness, it admonished, using an advisory undertone that is, effectively, a tool for managing risk. The poster warned the passer-by of the hidden dangers in the street and presented itself as the solution to the problem. In this sense it produced risk by highlighting the threat. It is an instrument of clear strategy, a manifestation of a modern attitude that conceptualises dangers in terms of visible risks that appropriate behaviours can manage. On the other hand, however, the poster is deliberately ambiguous. The use red (evoking alert but also sensuality) and black (indicating obscurity but also mystery) evokes a mix of danger and attraction. The unspecified location may be the street, but also a nightclub or a brothel. Film theorist Antonia Lant, has read the image's sensual and aesthetic appeal as an example of the eroticization of darkness in the wartime imagery.[186] In the dark, people would go out for recreation, and all encounters were possible — the image used 'sex appeal' to make a message regarding danger attractive to the male gaze: was the woman in danger or was she the danger? And was this danger somehow desirable?

The ambiguity of Morris' poster reflects the very ambivalence of risk itself: a mix of danger and opportunity. It allegorises the aspiration to move forward carefully into an uncertain future but also to see such an uncertainty as a possible opportunity. The need to make an image attractive so it could be looked at produces an aestheticization of danger that is loaded with contradictory implications. Morris engaged with the motif, quite popular at the time, of the dark lady whose seductive power broke families, leaked secrets and spread diseases. Misogynistic posters such as *Keep mum, she is not so dumb! (1941),* capitalised on the sexy spy stereotype, to dissuade war officials from engaging in 'careless' chat with

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[185] William Macpherson, *The Psychology of Persuasion,* (London : Methuen & Co, 1920).
[186] Antonia Lant, *Blackout: Reinventing Women for Wartime British Cinema,* (Princeton, N.J. ; Oxford: Princeton, 1991).

promiscuous women.[187] Women were also demonised at the time as the spreaders of viral diseases.[188] Morris's poster, however, slightly escapes and complicates these logics: with his ambiguous allusion to the exciting things that could happen at night, it was less of an admonition and more of an invite to responsible risk-taking.

The focus on visibility remains a central message across the different styles just described, and one that deserves further analysis. Morris visualises the dangers (and opportunities) of going out in the blackout. Games stimulated alertness and the importance of seeing clearly what is coming ahead. Respectively learning from Surrealism and Abstract Art, Morris' and Games' posters share a similar cautionary message: lack of visibility requires carefulness. Why was so much emphasis given to visibility in safety communication? Was visibility (or visualisation) a key feature of the perception and management of risk? The short answer is that if risks are the dangers that we see coming, then the act of vision becomes central to their perception and necessary for the implementation of responses to them. However, it is worth considering how this abstract idea of visibility is not at all a unified concept, but a broad metaphor for the perception of risk that captures multiple epistemological and heuristic processes. Visibility describes both the ability to see and be seen.

I have so far discussed how some road safety posters *performed* visibility through eye catching designs, but it is also important to observe how the *idea* of visibility is represented: as a vision internal to the subject, and less dependent on external circumstances. Both posters, more importantly, cultivate safety not as a condition of reality that requires external, objective circumstances, but as an internal sense of response-ability that despite the lack of clear vision, maintains an awareness and sensitivity towards what lurks ahead. The visibility of these posters is a form of vision that is non-retinal and stimulates the imagination rather than the eye.

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[187] Harold Forster's poster *Keep mum, she is not so dumb! (1941)* was issued by the Ministry of Public information as a part of the Careless Talk campaign. The slogan was an adaptation of the 1940 campaign, *'Be Like Dad, Keep Mum'*, which generated a parliamentary debate between a certain Mr Cooper and Labour MP Dr Edith Summerskill who defined it as "the worst Victorian music-hall taste." See "Poster", House of Commons Debates (7 May 1941) Volume 371 col.838. Accessed 21 Nov 2019, https://api.parliament.uk/historic-hansard/commons/1941/may/07/poster.
[188] I discuss this aspect in detail in Chapter 4.

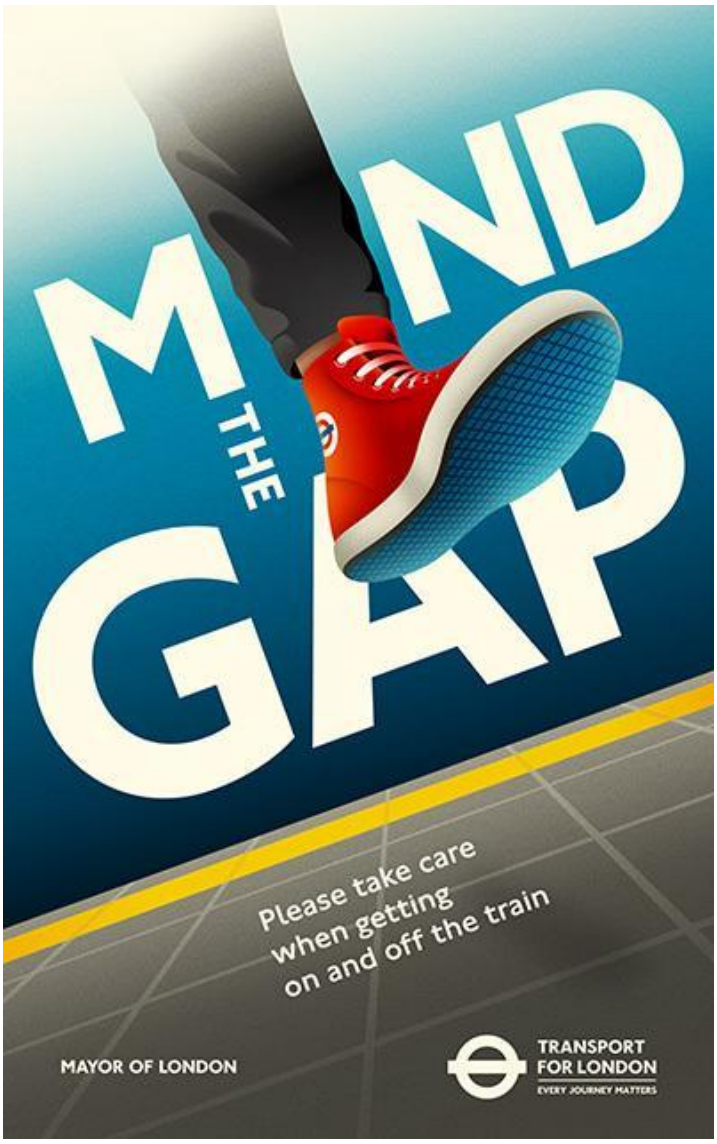

FIGURE 35 LA BOCA DESIGN, *MIND THE GAP*, POSTER FOR TFL SAFETY CAMPAIGN, 2018

In conclusion, visibility is an acquired skill that safety images cultivate; it encapsulates both the ability to see and be seen. The first standardised road signs and pictograms were the antecedents of today's warning signs, and contributed to create supposedly safer environments. Health and Safety warnings and signage today make use of very much the same principles of simplified figures, geometry, and block colours that emerged at the time of Safety First, which have become important 'aesthetic features' of our risk culture. With the progressive introduction of safety regulations since the Post War period, the symbols and icons of risk have become an integral part of the built environment. Hazard-tapes, yellow jackets, safety suits, fire exit signs, car stopping triangles and an infinite plethora of road signs have become imperative features of our experience of public and private space.[189]

[189] Semioticians usually classify sings as suggestive, imperative and indexical.

These warnings have an important part to play in the management and governing of risk (see Chapter 1) — they translate the knowledge of risk into its administration. Perhaps because of this, they have become somewhat invisible, incorporated as they are in the procedural protocols of risk management. Warnings today have lost their status as objects of design and artistic interest and dissipated into the bureaucratic language of risk management. Their metaphorical and persuasive function has faded once they have become tools for the exercise of law, designed according to specific guidance and evaluated via psychometric tests and studies in ergonomics.[190] This factor alone has changed warning signs and their perceptions, clarifying that the need to make risk visible (and to make decisions in accordance) has been removed from our conscious decision making and almost automatized through the consistent and iterative use of warnings of different kinds and forms. Considering the efforts that designers made in the first half of the 20th century to create memorable images, it is ironic that the visibility that they so much emphasised has made warnings disappear out of overexposure. Today organisations and designers have to step up to the challenges brought by this overexposure to warning signs, and search for different ways to surprise passers-by. Ironically, a recent campaign by Transport for London has looked back at the golden era of poster design repurposing an iconography similar to Morris' blackout poster to invite Londoners to "mind the gap" when exiting the underground trains (Figure 35).[191]

At the same time the cultivation of a "safety sense" has also remained crucial not only in the communication of risk but also in its prevention. In a recent paper about TV adverts for air fresheners in the 80's, cultural historian Sheryl Hamilton has observed how they visualised smell by showing "invisible" germs.[192] She describes this process as a form of somatic enhancement, a concept she derived from Richard Shusterman soma-aesthetics[193] suggesting that, by watching the advertisement, the audience began to pay more attention to the smells around them. Did these posters act in the same way? A poster by Manfred Reiss seems to confirm this hypothesis — in the image, water is self-poured from a watering can into the head of the character whose forehead is stamped with a red triangle: "Cultivate Your Safety Sense", it advises (Figure 36). The metaphorical language of the poster is not too

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[190] Michael S. Wogalter et al., eds., *Warnings and Risk Communication.* (London: Taylor & Francis, 1999).
[191] The Campaign was the winner of the Bronze Award Outdoor Craft for Best Art Direction Creative Circle 2018.
[192] Sheryl Hamilton, discussed this topic in her paper "Screening Hygiene/Spraying Health: Disinfectant Commercials and the Governance of Contagion" presented at the Broadcasting Health and Disease: Bodies, markets and television, 1950s–1980s, Wellcome Trust, London Feb 2018.
[193] Richard Shusterman, *Thinking through the Body: Essays in Somaesthetics* (Cambridge, UK ; New York: Cambridge UP, 2012).

distant to the idea of somatic improvement, but its outdated style raises instructive reflections in relation to what the "safety sense" of risk perception actually entails today.

FIGURE 36 MANFRED REISS, *CULTIVATE YOUR SAFETY SENSE*. (N.D.) ISSUED BY ROSPA.

In current times, developments in capturing techniques, algorithms and forecasting have increased our prediction abilities — satellites tell us if a storm is coming and whether there will be traffic on the road ahead. Scans and screen tests allow us to see if our babies will be healthy; cameras placed in remote parts of the world show the growing islands of plastic waste that are threatening life on our planet. In the same way, when the microscope was first used to examine water from the Thames, it revealed his previously invisible population of "monsters" (Figure 37); the microscopic image, among other things, changed the

perception of risk and the imagination of what could happen. Ancient Romans also made similar attempts to predict what would happen, but they could only rely on oracular technologies: diviners (Sybille) would *observe* animals' interiors to predict success or defeat in battle. Today we can interpret signs in a way that is different from then - we can literally *see* the future through the optical devices that enhance our visual organs.

FIGURE 37 WILLIAM HEATH, *A WOMAN DROPPING HER PORCELAIN TEA-CUP IN HORROR UPON DISCOVERING THE MONSTROUS CONTENTS OF A MAGNIFIED DROP OF THAMES WATER; REVEALING THE IMPURITY OF LONDON DRINKING WATER*. 1826. ENGRAVING. WELLCOME COLLECTION, LONDON.

Jennifer Gabrys recently wrote that the explosion of environmental sensing technologies in the 21st Century has expanded the programmability of the environment,

> Satellites now regularly monitor environmental change. Tracking carbon dioxide in the atmosphere and patterns of deforestation. Satellites are referred to as 'eye in the sky' that (…) communicate to ground station while relying data about and through environments as they watch over earthly spaces and even transform the planet into a digital earth.[194]

[194] Jennifer Gabrys, *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet,* (Minneapolis: University of Minnesota Press, 2016), 3.

These technologies have improved our sensing abilities and promised a programmable world free of surprises, where there is no space for unpredicted risks and decisions are made with awareness of potential harm. Today as much as in the early days of the 20th Century, the 'visibility' of risk doesn't describe an optical ability but an expanded capacity to sense pre-emptively; the advent of risk has thought people to see the potential in the contingent and changed the way they look at the environment. Moreover, the perception of risk has multiplied the layers and perspectives by which we can sense reality. A Safety First booklet from 1962 (Figure 38), invited readers to 'spot the hazard' thus playfully engaging them with risk assessments. It took the reader through every room of a household, revealing the invisible layer of potential disasters in an otherwise "safe home".

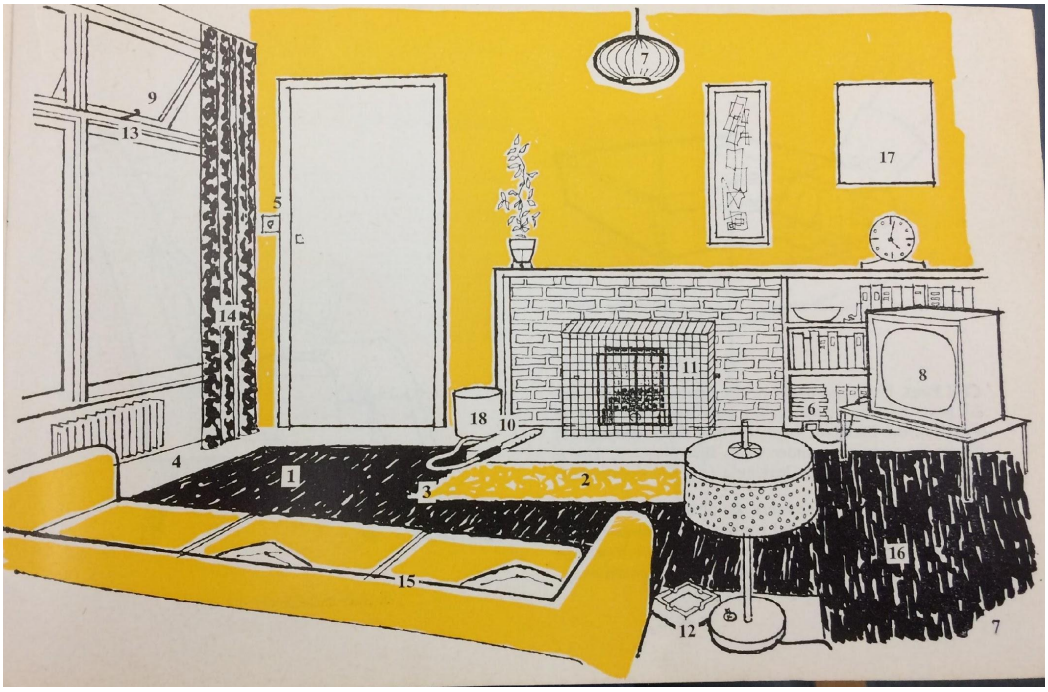

FIGURE 38 *SAFETY IN YOUR HOME*, BOOKLET, 1972. ISSUED BY ROSPA.

3.4 How to Avoid Accidents

The impact produced by campaigns for road safety would have been minimal without the parallel developments in regulation, technologies for safer cars, and safety measures in the design of roads. Nevertheless, road safety posters are examples of a significant transformation that recognised the necessity for a systematic approach to risk 'institutionalising' it through governmentally promoted campaigns for the public good. Setting the basis for later legislation, safety images were part of a wide-spread infiltration of warnings across the world on multiple levels of communication. In the medical sector, where public health campaigning had a much longer history (Public Health Act 1848),[195] posters were used for preventing the spread of deadly diseases such as malaria, cholera and syphilis (see Chap.4). Britain could be proud of its increasing attention to health prevention — the British empire exhibition of 1925 was dedicated to the rise of the science of preventive medicine.[196] At the same time international bodies such as the World Health Organisation (1948) or the well-established Red Cross (1863), campaigned extensively against famine and epidemics on an "global" scale, and from the 1960s began to release stamps with risk prevention images in developing countries.[197]

With public safety becoming a global concern, its visual language became international. This language not solely consisted of standardised signage, but also comprised a taxonomy of visual motifs and situations that travelled across different continents and historical periods. First-aid instructions, for example, became purposefully repetitive and identical to each other as they were part of a global enterprise to save lives in emergency situations. A new repertoire of images directed towards the prevention of accidents in the workplace emerged at this time reflecting the diversity of politics and the visual strategies of those producing them. The following paragraphs focus on the salient aspects and reoccurring iconography of the accident in relation to the politics of governing risk between reassurance and fear. Through examining the different tactics deployed, one should ultimately ask, how can images help prevent accidents?

The images produced for the reduction of accidents in the workplace or in general for the emerging field of occupational safety, provide a valuable case study for the diversity of politics and visual strategies employed. The development of Health and Safety at work in Britain has had a very similar trajectory and impact to that of road-safety. Public campaigns

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[195] Charles E. Bernard, "An Act for Promoting the Public Health", Chart of the Public Health Act, 1848, 11 & 12 Vict. Cap. 63. (London: Bradbury & Evans, 1848).
[196] George Rosen, *A History of Public Health*. (New York : MD Publications, Inc, 1958).
[197] A large collection of such stamps in held as a part of the Wellcome Collection.

for the prevention of accidents in factories began during WWII to protect workers' welfare, later evolving from general advice to legislation[198], and again to the current paradoxes of a compensation culture and health and safety "gone mad".[199] The British Industrial Safety First Association was created in 1918 (later incorporated with RoSPA) and as data from accidents was collected and behavioural patterns identified, the government introduced new labour protection regulations with the Factory Act of 1937. In accordance to these laws, the employer had a "duty of care" towards his employees and it was in his best interest to keep the production line efficient by avoiding unnecessary accidents. Safety at work was even more important when one considers the hazardous industries that constituted the backbone of British economy at the time — coal mines, heavy industry, railway, and weapons.

According to Design Historian Paul Rennie, England was at the forefront of work safety with the most sophisticated and consistent designs.[200] Similar to what was done with road safety campaigns, RoSPA commissioned well respected graphic designers, such as Tom Eckersley or Leonard Cusden, to create posters to be displayed in factories to instruct workers how to avoid accidents when using their tools and operating heavy machinery. The posters that they designed deployed snappy slogans, bright solid colours and sometimes humour, while alarmist tones were mostly avoided. Pain, damage and danger were somehow taken seriously, not exploited to create anxiety and fear: these were images designed to teach, more than to impress. In Eckersley's words, images had, "to simplify a problem so that it would be immediately understandable by the people involved. No question of leaving it to the imagination".[201]

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[198] The most important Health and Safety act is from 1972. See: "Health And Safety At Work Etc. Act 1974". Legislation.Gov.uk, 2015. Accessed 21 Nov 2019, http://www.legislation.gov.uk/ukpga/1974/37/contents.

[199] This expression refers to the negative perception of health and safety in the general public, seen as a stagnating and bureaucratic field with little impact in real circumstances, which at its best produced a risk averse mentality. An ERC research project by historian Mike Esbester has looked at unpopularity of health and safety 'communication' and made some suggestions that have been taken into account in recent years, when operators are finding new ways and approaches for public engagement. See Mike Owen Esbester, and Almond, Paul. "Do the public have a problem with health and safety?" in *Health and safety in a changing world*, eds., Robert Dingwall et Shelley Frost, (Routledge, 2017). 16-35.

[200] Paul Rennie, *An investigation into the design, production and display contexts of industrial safety posters produced by the Royal Society for the Prevention of Accidents during WW2 and a catalogue of posters*, (PhD diss., University of the Arts London, 2005). And of the same author: "RoSPA's Second World War safety posters challenge orthodox views of British Modernism." *Eye Magazine.* Vol. 52 Summer 2004. Web. Accessed 19 Nov 2019, http://www.rennart.co.uk/eye.pdf.

[201] Tom Eckersley "RoSPA posters and Leonard Cusden." *Fulltable.com*. Accessed 19 Nov 2019, http://www.fulltable.com/VTS/e/eck/sd.htm.

FIGURE 39 TOM ECKERSLEY, *ASKING FOR TROUBLE*, 1942 © PAUL RENNIE

FIGURE 40 HANS ARNOLD ROTHHOLZ, *HERE LIES THE VICTIM OF AN UNTIED SHOE-LACE*,1944. ISSUED BY THE MINISTRY OF LABOUR AND NATIONAL SERVICE, IWM COLLECTION.

FIGURE 41 HANS ARNOLD ROTHHOLZ, *FENCE ALL OPENINGS*, POSTER, 1947 © PAUL RENNIE

FIGURE 42 LEONARD CUSDEN, *SCRAP I'VE LOST MY BITE*, 1950'.

FIGURE 43 TOM ECKERSLEY, *BROKEN STRANDS TORN HANDS,1942*. OCCUPATIONAL SAFETY POSTER ISSUED BY ROSPA

FIGURE 44 TOM ECKERSLEY, *REPLACE COVERS PREVENT FALLS*,1942. OCCUPATIONAL SAFETY POSTER ISSUED BY ROSPA

Compared to the two road safety posters discussed, moreover, the focus shifted from visibility to the development of a gestural, performative safety. Occupational safety posters were, in short, instructional images. Most of them, in fact, focussed on specific actions, — e.g. boots stepping on broken ladders, damaged tools transformed into biting creatures, workers wearing goggles, hands manoeuvring machinery. The advice in these posters were clearly targeted to reflect specific situations of the worker's life with a visual language that was simultaneously captivating and precise.

TOM ECKERSLEY'S WORK IS ESPECIALLY TELLING, WHEN HE ZOOMED INTO THE DETAILS AND PRACTICES OF THE FACTORY BY SALIENTLY POSITIONING THE FOCAL POINT IN HIS IMAGES WITH AN ABILITY THAT I WOULD DEFINE CINEMATIC. IN *STORE TOOLS SAFELY* (1942/43) AND *ASKING FOR TROUBLE* (1942/43) (FIGURE 39), THE SCENE IS SEEN AS THROUGH A MACRO LENS THAT CUTS OUT THE UNNECESSARY BACKGROUND FOCUSING ON THE SALIENCY OF THE ACTION. THE SAME HAPPENS IN *BROKEN STRANDS TORN HANDS* (1942),(FIGURE 43 TOM ECKERSLEY, *BROKEN STRANDS TORN HANDS,1942*. OCCUPATIONAL SAFETY POSTER ISSUED BY ROSPA

Figure 44 Tom Eckersley, *Replace Covers Prevent Falls*,1942. Occupational Safety

poster Issued by RoSPA*)* where a magnifying lens zooms into a potentially damaging cable, or in *Replace Covers, Prevent Falls* (1942) (Figure 44) where the victim of an accident is framed by the hole in the pavement into which he has fallen Eckersley's unique framing associated with the consistent deployment of heavy shadows (a stylistic feature that came with new developments in posters printing technique), gives his images somewhat of a film noir appeal. [202] The tension never develops into graphic or demoralising imagery but is strong enough to attract attention and to convey a precise message to the viewer.

These images had a peculiar relation to the workers life and their politics — the instructions were introduced with the purpose to establishing "patterns of safety" via their reiteration and incorporation into the workers routine. In a sense they were *performative*. [203] Instead of scaring viewers, these occupational posters operated on a heuristic level, deploying slogans, truisms and life-lessons to be constructed in the mind, and learned through repeated exposure. Extrapolating the task from its contingency, moreover, they gave it an almost universal dimension behind this mundane, often alienating reality. This is probably the reason why, seen outside their context, these posters have acquired an allegorical status that leaves the semantic associations between imagery, text and context continuously open to reinterpretation and universalization.

The need to train rather than dictate, was also evident in the humoristic posters designed by Philip Mendoza (1898-1973) and Cyril Kenneth Bird (1887-1965). Mendoza's invented character, the helpless builder Percy Vere, featured in posters and booklets as he ridiculously fell from one incident to the other in an attempt to follow the rules (Figure 45). The parables of the clumsy worker reiterated *ad infinitum* the everyday actions of a building site worker and transposed them into a self-deprecating, humoristic dimension. By revealing elements of self-mockery (or parody), these tongue in cheek vignettes stood out by embracing the slightly ridiculous, absurd nature of the rules themselves: in this way they empathised with the workers rather than patronising them.

Another champion of the humoristic style in safety promotion was Cyril Kenneth Bird, known as Fougasse. He was aware that people don't normally pay much attention to official notices and, if they do, they don't think that what they read is relevant to them.[204] He was also aware of business owners' reluctance to display posters with dreadful or shocking imagery — humour instead was more interesting and engaging. When the street code was

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[202] As noted by Rennie in *Safety First,* Eckersley adopted the technique of "framing" as a central visual element of his posters.
[203] Rennie, *Safety First,* 32.
[204] Rennie, Safety First. 108. Statistical analysis and neurological studies have proven that this is true. See Chapter 9, Spiegelhalter.

introduced in 1930, ROSPA commissioned the booklet *Many Happy Returns* (1948) from Fougasse.[205] The graphic artist was already famous for his anti-rumour poster campaign commissioned by the Ministry of Information in 1938. The campaign, *Careless Talk Costs Lives* (1938), depicted Hitler and Goering as a ubiquitous slapstick duo on a mission to capture the secrets of British intelligence. This widely publicized campaign (which had an international reach, with American versions as well as other countries involved in WWII) was problematic, as it contained a sinister message that invited distrust in anyone. Fougasse's humorous interpretation of this motif, strikes as particularly sophisticated, perhaps suggesting that he may have found the whole "careless talk" obsession absurdly funny.

The same irony is also present in *Many Happy Returns*, where he adopted a kind tone by introducing the phrase "please remember" or "do not forget" in every page alongside his usual cartoon-esque vignette. The instruction, was always associated with a joke, almost mocking the paternalistic tone of the recommendation. This went as far as presenting the Automobile Association (who commissioned the booklet) as "the world's largest organization (that) combines the functions of the guardian, the philosopher, the friend and the St Bernard dog to each of its 600.000 members".[206]With the use of repetition as an aid for memorization and by making fun of the source of the advice in the first place, this booklet got drivers accustomed to the street code without adopting the patronising, if not involuntary comic, effect of later campaigns nor the disturbing imagery of famous drink driving adverts of recent years.[207] Moreover, Fougasse's and Mendoza's humour had a scope that transcended persuasion to enter the territory of the educational. The warning message was presented as a humorously anecdotal vignette and not as a morally pedantic or threatening representation of an impending calamity. According to Paul Rennie, this light hearted approach to occupational safety was a prerogative of ROSPA's unique visual sophistication

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[205] Fougasse (William D. McCullough) and Royal Society for the Prevention of Accidents. *Many Happy Returns: And How to Enjoy Them*. (London: National Safety First Association, 1948).
[206] Fougasse, *Many Happy Returns*, 20.
[207] In the 1960' the attempts to scare drivers reached somewhat grotesque effects, e.g. the poster *He thought he could drink and drive*. More recently, gory imagery has become very popular. In 2002, the Texas Department of Transportation issued an anti-drunk driving campaign that featured a photograph of a horribly disfigured woman. The idea for the ad came from a focus group of 15 to 20-year-olds who claimed that in order to be effective, "You have to show us real consequences, you have to show us things that are graphic, we don't get subtle." See: "A Sobering Message to Drunk Drivers. Graphic Texas Ad Campaign Features Disfigured Crash Survivor" National Public Radio (NPR), 18 October 2002. Web. Archived 15 April 2009 Wayback Machine. Accessed 19 November 2019, https://web.archive.org/web/20090415184633/http://www.npr.org/programs/atc/features/2002/oct/texas_dwi/index.html. I return to the theme of gory imagery in Chapter 4.

as well as a reflection of British working-class values.

Work-safety posters from Russia and the US are strikingly different. In Russia, for example, many occupational safety posters involved dramatic vignettes, with blood spilling limbs and other gory details. Their emphasis on 'error–punishment' scare tactics, was possibly in line with the tremendous efforts invested by their state-organised industry.[208] The message conveyed in a poster such as *Do not leave anything loose on the scaffold* (Figure 47), is similar to Eckersley's posters, but the visual strategy is totally different. Compared to the mildly noir atmosphere created by the British designer, this poster is the picture of an impending nightmare were the instrument of the worker's freedom — the hammer, turns against him by hitting him in the head.

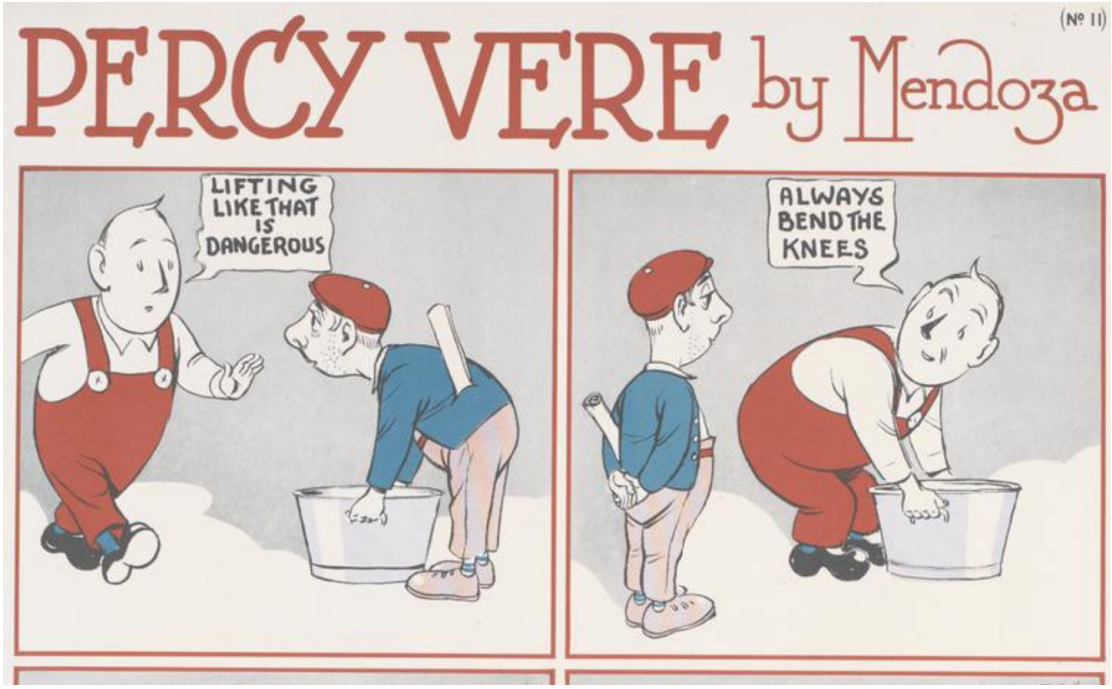

FIGURE 45 PHILIP MENDOZA, *PERCY VERE N11*. DETAIL. POSTER ISSUED BY THE MINISTRY OF LABOUR AND NATIONAL SERVICE AND ROSPA. IMPERIAL WAR MUSEUM LONDON.

In support for his argument for British sophistication in safety communication, Rennie has also noted that in America pride and patriotism were the main emotional frameworks for

[208] Occupational safety posters during the early days of the Russian revolution were part of governmentally sponsored campaign of sanitary enlightenment. See Frances L. Bernstein, "Envisioning Health in Revolutionary Russia: The Politics of Gender in Sexual-Enlightenment Posters of the 1920s." *The Russian Review.* 57.2 (1998): 191-217.

making safety instructions appealing and effective. Every day spent at home due to an injury was precious time that the worker was deducting from the necessary effort to keep the country up and running. The poster *Dental Care Keeps Him in the Job* (1942) (Figure 46), from a health promotion campaign by the US Public Health Service, showed a muscular factory worker with his mouth open for a dental check. It demonstrates how, in the USA, safety was, as in many other aspects of the working life, focused on individual responsibilities. Employers identified the workers with their productive force, whose duty was to be as efficient as possible. Hence injury was associated with an incapacity to fulfil one's duty, a condition of 'unfitness' for which the worker was solely responsible.

The British posters described above are examples of how risk could be visualised and warnings produced in an unpatronizing fashion. The Russian and American examples appear as less sophisticated. Their propagandistic message is immediate, the gory visual strategy clearly talks of a systematic use of fear, rather than persuasion to deter from accidents, it talks of totalitarianism rather than democracy. One almost spontaneously identifies such scare tactics with totalitarian regimes, while reassurances with a more progressive, democratic method of engagement. These distinctions however are far more complex than it may initially seem.

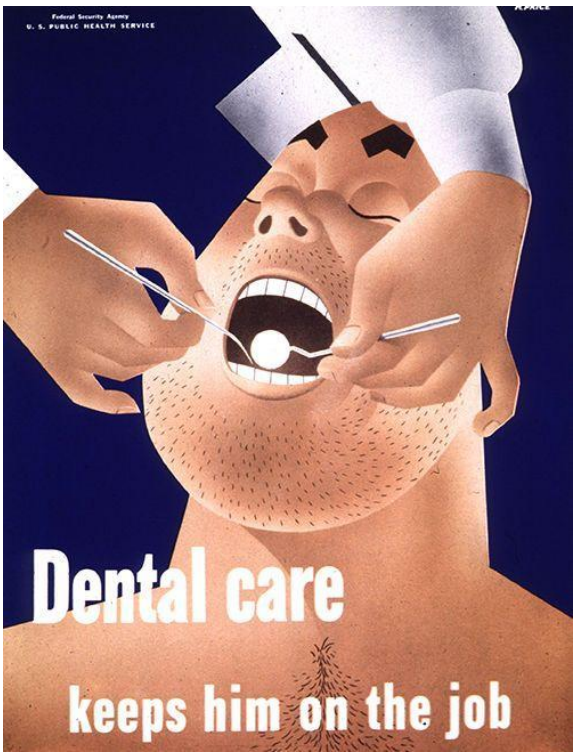

FIGURE 46 AUTHOR UNKNOWN, *DENTAL CARE KEEPS HIM IN THE JOB*, 1942. POSTER ISSUED BY THE USA PUBLIC HEALTH SERVICE.

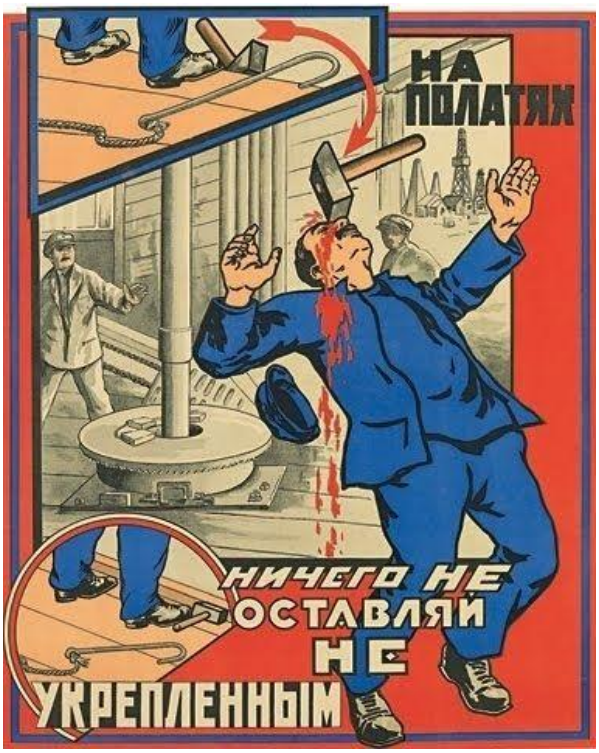

FIGURE 47 AUTHOR UNKNOWN, *СОВЕТСКИЙ ПЛАКАТ: НА ПОЛАТЯХ НИЧЕГО НЕ ОСТАВЛЯЙ НЕ УКРЕПЛЕННЫМ* (DO NOT LEAVE ANYTHING UNFASTENED ON THE SCAFFOLD), LATE 1920'. WORK SAFETY POSTER, RUSSIA.

Even with their "quintessentially British humour" and benevolent depiction of the worker's routine, British safety posters were not immune, as Fougasse's humour pointed out, to self-celebration and legitimation. [209] Such a reasonable visual strategy, seen as the result of the development of fair working conditions and rights for the working class by Rennie, is in fact not immune to controversies, nor is it completely neutral, in the sense that the warning message was (and is) unavoidably biased. "One of our fighters is missing if you are off work with an accident" famously declared the president of the National Safety First Association during WWII, Lord Harry McGowan, who was, not so coincidentally also the mastermind behind the consolidation of the explosives and weapon industries in the UK.[210] McGowan's concern with the safety of his workers was negatively correlated with his interest in producing weapons, regardless of the ethical considerations that such a controversial industry presented. In a sense, workers' safety implied the future success of the British forces and the death of their enemies on the battlefield. Moreover, the deliberate attempt of not

[209] Rennie, *Safety First.* 19.
[210] Rennie, *Safety First.* 21.

showing distressing images to a population that was at war, may be seen as censoring, preventing the population from questioning the war in the first place.

Such differences in visual strategies comparing to Russia, emphasizes the extent to which the encouraging and reassuring tone of the British occupational safety posters neatly fitted with Churchill's proverbial concern with the Nation Morale in time of war.[211] A belief that was shared by both ROSPA commissioners and designers, that images should not be used to provoke terror. As much as the manifestations of the extraordinary creativity of their designers, safety images are also direct expressions of the agenda that produced them. The sophistication and free thinking of some of their designers impacted how risks were portrayed and perceived, but ultimately, they remain extensively entangled with the politics of governing risk, which they help to illuminate. The next chapter will examine the ways in which images are used as tools to manage risk and on the aesthetics of reassurance or fear that they deploy. I will return to this issue in in the next chapter and focus on the ways in which images are used as tools to manage risk and on the aesthetics of reassurance or fear that they deploy. However, I must firstly emphasise the prominence and educational value of what I shall call "the instructional language" of safety communication, as it emerges from the examples described above.

3.5 In Praise of Instructions

With their emphasis on actions to be performed or avoided, the repetition of visual motifs as an aid for memorization and subsequent behavioural change, safety images have an unprecedented instructional quality. Regardless of their more or less heavy appeals to fear or reassurance (which in themselves raise questions about the ethics of the visual representation of violence, see Chapter 4), the relevance of safety posters resides in their instructional quality, and the politics that come with it. Fougasse's and Mendoza's humour, or the modernist instructional posters by Eckersley, and even the Russian example, in their absolute difference, had a scope that transcended persuasion and entered the territory of the educational. The dissemination of these images was a reiteration, *ad infinitum*, of actions that could be reproduced endlessly and ubiquitously. Images, then, could reclaim their role as guidance for behaviour, and once again be the carriers of a universal message, just like old times' cautionary tales. The relation between safety images and the gestural (or performed) safety that they claim to instigate, situates them in a long-standing tradition in art history, where pictures are invested with an educational responsibility. These are

[211] See beginning of this Chapter.

medieval representations of virtues and correct conduct, fables from classical traditions (as Aesop or Fedro), parables, allegories, tarot and proverbs. Bridging the gap between high and vernacular art these forms of representation were never considered *art pour l'art,* but the means to convey what at their time was considered the right code of conduct.

Images of hell and the apocalypse were warnings for medieval sinners, deploying fear just like the Russian poster in our example. Aesop's cautionary tales of animals warned about the excess of hubris or bad neighbours in a child friendly manner. Many years later, road safety comics such as ROSPA's *Tufty* (1953) or nuclear fallout booklets (*Bert the Turtle*, 1951) used animals to familiarise children with the dangers around them teaching the appropriate behaviour. Satirical illustrations have humorously ridiculed alcohol intoxication like Fougasse or Mendoza mocked the helpless builder.[212] Even the arcane tarot language, which is today associated with divinatory purposes was originally a means to teach about moral values and their consequences.[213] Comparably, safety images instructed on the perils of modern life, not just on the road or at work, but also in any other circumstances — from home safety and fire protection to health prevention, from drink driving to safe play and travelling. The anecdotal illustrations of risks surrounding every aspect of life not only made something as intangible as risk visible, but also worked predictively, attempting, like tarot, to interpret the future or use it as leverage for action.

There is, however, an essential difference between these traditions and modern-day safety images. Where cautionary tales had a strong moral and even religious component, safety instructions, are (or try to be) free from esoteric notions of providence and divine retribution, or from moral judgements. They operate on a completely secular level, tentatively challenging the idea of destiny, and the possibility of fortune-telling with one of cause and effect. "Accidents don't just happen, they are simply caused" was one of ROSPA's favourite catchphrases which, perhaps a bit simplistically, reduced accidents to predictable and avoidable circumstances.[214] Historian Michael Witmore has extensively studied the shift in the ways accidents are perceived, identifying its inception at the turn of the seventeenth century, when the Aristotelian accident, conceived as a one-time unpredictable phenomenon, become something that could be manufactured or simulated in a laboratory.[215] "In the *Novum Organum*" he explains "Bacon defines an experiment as an accident that one seeks

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[212] See for example William Hogarth (1697-1764) engravings such as *Gin Lane,* 1750-1751.
[213] Inna Semetsky, *The edusemiotics of images: Essays on the art~ science of Tarot*, (SensePublishers, 2013).
[214] This very slogan featured in a 1963 poster issued by RoSPA.
[215] Michael Witmore, *Culture of Accidents. Unexpected Knowledges in Early Modern England*. (Stanford: Stanford University Press 2002). See also Judith Green. *Risk and Misfortune : A Social Construction of Accidents.*(London ; Bristol, Pa.: UCL, 1997).

deliberately to create".[216] The empiricists, moreover, saw accidents as opportunities for understanding the laws of nature. Modern day error reporting systems normalise accidents by incorporating them into error propagation, error detection and error management systems.[217]The experience of past catastrophes is used today, in risk management to predict or reduce the effects of future disasters.

Accidents today are studied with forensic attention but also universalised via warning messages. If a single accident cannot be predicted, we can estimate its probability by mapping the circumstances that provoke it: it becomes one of a long chain of similar events, a number in larger statistical accounts that observe it and incorporate it into patterns of behaviours (or safety). The warning message is a tool for influencing this behaviour as it turns single actions into lessons through images and their repetition. Safety, then, can manifest itself through the repetitive practise of appropriate behaviour, and the instruction is the perfect method for communicating it.[218]

The instruction, in fact, exist in the duplex level of an allegory — one as situated occurrence (an isolated action in time, a contingency) and the other as repetition and imitation. It is horizontal because everybody can follow it and it is transcendent as it has no-limits in time. Instructions can travel from vernacular to high art, trespassing national and language barriers, they transform single gestures into icons that will be, in turn, performed and iterated. There is also a significant correspondence with temporality. The more mundane and repetitive the action, the more emblematic and universal the instruction. The instruction is an idealised version of an action — a memento, a model, a simulation. It exists in the ongoing presence of *kairos*, in a time of recurrence that does not know present or future.[219] Simultaneously individual and universal, contingent and enduring the language of instructions consists of models for behaviour and operates at a level of visual codes and tropes that are collectively (or democratically) understood.

Safety images contributed to create - and tapped into, a repertoire of actions and their representations that have multiplied themselves hand in hand with the need for better reassurance and security through posters, pictograms or signage. This "instructional style of safety communication" has entered the collective imagination and become a significant, aesthetic feature of risk in 20th century. This unsentimental manner of communicating danger

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[216] Sina Najafi, Justin E. H. Smith, and Michael Witmore "Wonders taken for signs: an interview with Michael Witmore', *Cabinet,* Issue 54: The Accident, Summer 2014.
[217] Computerised error reporting systems are for example very common in aviation.
[218] The instruction is a key feature of the aesthetic of risk alongside rehearsals, how to manuals and data visualisations. I address such methods in the following chapters.
[219] For Kairos and Kronos see Frank, Kermode, *The Sense of and Ending* (London: OUP, 1973).

through instructions was a proactive, and in some cases useful, means to mitigate uncertainties; it suggested solutions for reducing loss by changing behaviour.

Were instructions effective in reducing danger? Apparently yes. Safety images acted on a negotiating level between individuals, collectives and institutional responsibilities constituting an integral part of the administrative infrastructure of risk. Organizations like ROSPA meticulously collected data about accidents, providing evidence for their claims of high rates of success.[220] It is hard to estimate the direct impact of images in changing behaviour as they are, as I have hinted at the beginning of this section, direct expressions of the agendas that produced them. Their success in changing attitudes and behaviour towards risk taking is, of course, dependent on other factors — the most important of which are legislation, policies, technical and scientific advancement — yet their importance in communicating (and producing) risk is unquestionable.

3.6 Conclusion

In this chapter I have discussed how the Safety First movement at the turn of the 20th century instigated the production of images for the management and representation of risk. Responding to the new dangers of industrialisation, urbanisation and war, these safety images were part of broader initiatives of public information that aimed at promoting healthier and safer lives. With a strong focus on heuristics and visibility, these campaigns encouraged a new interest and investment in techniques for visual communication that promoted safety through nonverbal language. Warning signs kept drivers alert by introducing and standardising bright colours and geometrical shapes. Different forms of persuasion and visual engagement were experimented with — from sensuality, to humour, to fear, as imaginative artists and designers reproduced the scenes of modern life and turned them into warnings and instructions. Putting to use the lessons of abstract art, surrealism or cinema into the agenda of managing risk, these extraordinary designers did not follow particular rules or metrics, but relied on their visual sense and intuition. What emerged from this context, was a new instructional aesthetic that, I have argued, became the aesthetic of risk as it presented danger as manageable and tractable.

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[220] "History of the Royal Society for the Prevention of Accidents." *Rospa.com*. Web. Accessed 2 December 2019, https://www.rospa.com/About/History.

4 CHAPTER. Between Fear and Reassurance

4.1 Introduction

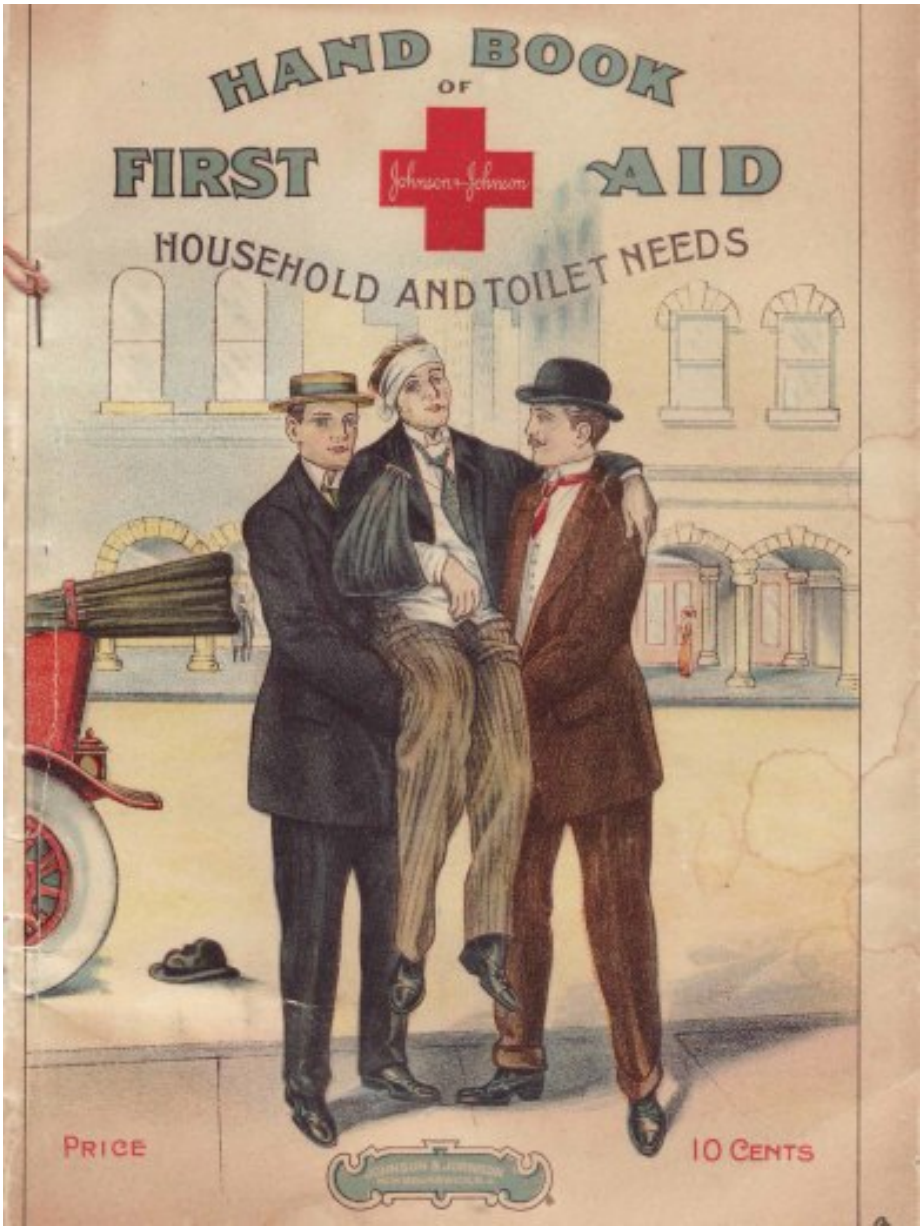

FIGURE 48 *HAND BOOK OF FIRST AID*, BOOK COVER, 1903. ISSUED BY JOHNSON & JOHNSON, JOHNSON & JOHNSON ARCHIVES.

Warnings are the tangible, visual manifestations of our risk culture. Instructional or emotional, evidence-based or speculative, metaphorical or literal, institutional or commercial, imperative or advisory, alarming or seductive, or all of the above together, warnings demonstrate how risk operate *aesthetically* in the world. By analysing the different strategies deployed to warn people, we can understand how risk operates; revaluate our exposure to risks and disentangle the variety of messages that we encounter; the visual

analysis of warning styles provides a pool of models and experiences from which to learn.

So-called shock tactics are commonplace in the publicity and political campaigning of the 20th and 21st centuries, and they are widely debated in the study of visual culture for their ability to shake public opinion. It is not the same, however, for the equally ubiquitous messages that encourage safety and self- efficacy as a part of risk communication campaigns.

Across the first half of the 20th century, the instructional style deployed in the Safety-First images became ubiquitous. A taxonomy of gestures and motifs emerged as a part of a multi-channelled infrastructure that not just dealt with risk but started to produce it as a part of a capitalist society. With methods very similar to those of advertising (that also relies on persuasion to change customer behaviour) safety instructions attempted to demonstrate models for healthy and safe living. This chapter will focus on the aesthetics of reassurance and fear that these initiatives deployed. Tracing the appearance of safety messages in cigarette cards and insurance advertising during the interwar period, I will assess their instrumentalization of safety for economic profit, but also their ability to engender self-assurance. In the second part of this chapter, I will ask whether visual strategies that promote a sense of "self-efficacy" are more effective than scare tactics in deterring people from taking risk.[221] In doing so I will engage with evidence from behavioural psychology about the current introduction of distressing images in cigarette packets.

4.2 "Invest in Yourself". Risk Messages and Self-efficacy

"You can make a wise investment in 1933 — whether or not you have money to invest",[222] states a magazine advert for the American Met Life insurance company in 1932 (Figure 49). Looking towards the year ahead, it exploits the aspirational desires of the American middle class in a period of new year resolutions. Before investing, however, the advert warns, wise men should have their health checked and read *Health, Happiness and Long Life* (1932), the insurance sponsored booklets rife with useful tips for a healthy lifestyle. [223]

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[221] According to psychologist Albert Bandura, self-efficacy defines "how well one can execute courses of action required to deal with prospective situations". Albert Bandura, "Self-efficacy mechanism in human agency," *American Psychologist* 37. 2 (1982): 122–147.
[222] Metropolitan Life Insurance Company, "Invest in Yourself", US December 1938, printed advert. Accessed 20 January 2020, https://www.ebluejay.com/ads/item/5535567.
[223] Metropolitan Life Insurance Company, *Health, Happiness and Long Life* (Ottawa: Metropolitan Life Insurance Co, 1930).

In a time when safety messages permeated the US industry through the American version of the Safety First movement, public health, more than safety, was high on the political agenda. In 1923, the famous epidemiologist Charles-Edward Amory Winslow (1877-1957), wrote an impassionate article in support of public health, defining its scope beyond the prevention of contagious diseases, towards "prolonging life, and promoting physical health and efficiency."[224] Not surprisingly, beside various governmentally sponsored initiatives, advertising campaigns persuaded consumers to buy insurance policies and to peruse investments, safety and well-being. An added bonus of the production of safety images was engendering an overall sense of trust, since the images were instrumental in legitimising the protective role of the company producing them, who assumed the role of guarantor of public health and safety (Figure 48, Figure 50).

It is therefore not a surprise that advice regarding health, hygiene and prevention of accidents appeared precisely in the places where risk was the order of business — the promotional material of insurance companies, as Figure 49 shows. In the early 20th century USA, the public relation campaign of the Met Life (Metropolitan Insurance Company) adopted public health promotion as a strategy in complete synergy with the mobilisation of public health promoted at a federal and state levels.[225] In 1909 the company established their *Welfare Division* with the vision for "insurance, not merely as a business proposition, but as a social program".[226] Between 1909 and 1929, the company published more than 50 million Health Publications a year dedicated to the prevention of tuberculosis, accidents or campaigns for hygiene, baby and child health. These publications were distributed alongside other initiatives, such as nurses home visits to terminally ill policy holders. As years went by Met life reached their customers via weekly phone calls "to ensure familiarity and contact" and listening to the "problems, concerns, and hopes of their clients" whilst collecting premiums.[227]

The health publications adopted an easily recognisable brand, using an image of the Met life building office, which was designed to resemble a lighthouse. Their communication however, was diversified, with instructional, emotive, and humoristic tones in accordance with the content and the designated audience. Colouring books for children, posters for

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[224] Charles E. A. Winslow, "The Evolution and Significance of the Modern Public Health Campaign," *Journal of Public Health Policy* (New Haven: Yale University Press, 1923).
[225] Met Life is the name of the company today.
[226]Quote taken from Met Life official website. See also *Commercial Health and Accident Insurance Industry: Hearings Before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, Ninety-Second Congress, Second Session*. (Washington: U.S. Govt. Print. Off, 1973).
[227] Met Life Insurance. "Met Life, Your Trusted Partner." *MetLife.com*, Accessed December 2, 2019, https://www.metlife.com/asiaagency/en/about-metlife/metlife-your-trusted-partner/.

housewives, inspirational quotes for businessmen, all advocating the norms for safe behaviour in every aspects of life. In imitation of health bulletins or dispatches, they presented images surrounded by a generous amount of information (see Figure 49 and Figure 50) that persuaded customers to check for their health, their weight, their finances, their children,

FIGURE 49 *INVEST IN YOURSELF*. DECEMBER 1930. MAGAZINE ADVERT, MET LIFE. USA.

This marketing strategy did not just inform readers about how to avoid accidents or diseases, but also, by reducing them, prevented the conditions for the premium to be claimed. At the same time, the company would be perceived as an entrusted carer looking after the safety of their clients.[228] "In 1930, MetLife was the undisputed leader of the insurance industry, insuring every fifth man, woman, and child in the United States and Canada" recites the

[228] Remarkably, the opposite happened in the UK, where insurance companies refused to sponsor Safety First on the basis that it would increase the premiums that they would have to charge their customers. See Rennie *Safety First*.

company website. [229]

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"Run along home with that cold, Bill"

Wise parents, like wise teachers, know that the best place for a child with a fresh cold is home, resting in bed.

WHAT seems to be "just a cold" often turns out to be the beginning of measles, scarlet fever, whooping cough or some other contagious disease that may be epidemic. Keep your sick child away from other children. If the symptoms persist or there is fever, send for the doctor.

No person of any age should neglect a cold. In its early, acute stage the infection is easily spread, often sweeping through entire families, schools and factories.

By allowing a cold to drag on without proper treatment, you may let down the bars of resistance to pneumonia. If you take care of colds, and others do the same, everybody would be spared many serious illnesses.

Pneumonia is an inflammation of the lungs. It comes on usually with a chill, followed by a high fever, accompanied by pain in the chest or side, and coughing. A doctor should be called without delay. With prompt medical treatment and competent nursing, pneumonia can usually be controlled.

There are more than 30 kinds of pneumonia. Each is caused by a different type of germ which can be identified. An increasing number of laboratories have facilities for rapid sputum "typing." The serums now available for certain types of pneumonia are highly effective, provided they are given in time.

Start a simple course of treatment at the first signs of a cold. Rest in bed, if possible, or at least indoors. Eat lightly. Drink plenty of water and plenty of broth and citrus fruit juices. With precautions it is unlikely that a cold will develop into serious illness.

Colds and pneumonia both may follow lowered bodily resistance. There is much that can be done to keep vitality high during the coming winter months. The Metropolitan's booklet "Colds, Influenza, Pneumonia" contains many practical suggestions on building resistance against such infections. Send today for your free copy. Address Booklet Department 138-R.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, *Chairman of the Board* — ONE MADISON AVENUE, NEW YORK, N.Y. — LEROY A. LINCOLN, *President*

FIGURE 50 *RUN ALONG WITH THAT COLD BILL*, 1938. MAGAZINE ADVERT FOR MET LIFE. USA.

The challenge in insurance advertising was convincing people to think about the risks they faced in their lives in a way that would encourage them to invest in preventative policies. Risks where therefore created for them, so policies could be sold — Met Life turned risk into opportunity. More importantly, it did so by reassuring the American population. A slogan such as "See it. Say it. Sorted!" (Figure 5 discussed in Chapter 1) may well apply to

[229] Met Life Insurance, "Supporting Country and Community," *MetLife.com*. Accessed 2 December 2018. The content has now been removed from the original website, but is still available here: https://bhifs.com/metlife-insurance-washington/. Accessed 20 January.

Met Life's promotional material; here too the risk is represented, enunciated, and theoretically resolved.[230]

If insurance represents the most appropriate incarnation of risk, their publicity is the epitome of the need to instigate a pre-emptive mentality in the wider population. Insurance is the primary producer of risk as it literally puts theoretical dangers and damages into numbers and transforms them into policies for people to buy. Met Life, however, knew that these principles of prevention were not self-explanatory for everyone, so it translated them into safe habits. The success of the insurance publicity campaigns, with their unaggressive reassuring instructions for prevention is still evident in today's advertising of insurance, loans, and banks, that mostly recur to soothing voice over (mostly female) or cute puppets to inspire confidence and 'self-efficacy'. These examples demonstrate how reassuring messages are crucial to risk communication, perhaps more than the use of disturbing imagery. Knowing that there is an uncertain future which needs to be planned for, changed the way the present was perceived — brining it under the concurrent gaze of a risk management society.

Insurance advertising's history of success relied on a visual language that was able to emphasize (and visualise) the need for prevention. I shall call it "the instructional language of safety communication". It was so widespread to even appear in the promotional material for cigarettes. Examining the iconography of safety in cigarette trading cards in the following paragraphs, I will illuminate the formation of an international visual vocabulary made of gestures and instructions, and which turned everyday situations into an achievable code of conduct for more rational and safe living.

FIGURE 51 "DO NOT ATTEMPT FREE RIDING",1934. ONE OF 50 CIGARETTE CARDS FROM THE SAFETY-FIRST SERIES. ISSUED BY W.D. & H.O. WILLS, UK.

[230] See Chapter 1, where I argue that the use of "Sort it" in the slogan "See It Say It, Sort it" from London Underground anti-terrorism campaign oversimplifies the instruction of what commuters can do to counter terror.

FIGURE 52 SAFETY FIRST, CIGARETTE CARD ALBUM (50 CARDS), 1934. ISSUED BY W.D. & H.O. WILLS, UK.

Cigarette cards were originally introduced in 1875 in America by Allen and Ginter of Richmond Virginia. Small cards representing glamorous women or personalities from sport, history, cinema, and military life, were included in the packets as tokens, but their rigidity also served to prevent the cigarettes from breaking in their soft packets. In Britain, Wills & Co., a branch of the Imperial Tobacco Company, produced a *First Aid* series (1913) and a *Safety-First (*1931) edition with tips for avoiding minor incidents in the household: from "How to cut a slice of bread" to "Never put a lighted pipe in your pocket". When the Highway Code was published, a *Safety-First (*1934) (Figure 52) series targeting road accidents promptly followed. Cars heading to a cross roads, motorbikes overtaking public transport in busy roads. These "situations" were used to explain the norms of the highway code in a way that was not so different from today's test-driving manuals. The album produced for the series came with a forward from the Ministry of Transport:

> Parliaments may make Statutes and Ministers may make regulations, but individuals make roads safer by carefulness and courtesy (…). Anyone who spreads knowledge on this matter is helping in a national case: and I am out to encourage all who keep

> the public interested in this matter whether they are public bodies or, as in this instance, a private firm. I wish every success to the 'Safety First' of cigarette cards (…) and I welcome them the more as the cards will be disseminated among the children who are unhappily all too frequently numbered among the victims of Road Accidents.[231]

The presence of safety images in cigarette packages is striking if we consider that, just before WWI, the negative impact of smoking on health was widely publicised. "With the beginning of the war the moral threat of cigarettes suddenly seemed tame and anachronistic" writes historian Allan Brandt "smoking seemed positively safe compared to the profound violence confronting the men oversees (…). The war radically reconfigured Victorian notions of risk and danger."[232] Cigarette cards, were clearly propaedeutic to erasing the product from its negative connotation, associating it instead with ideas of wellbeing. Some series gave instructions about how to keep fit, how to swim, or simply represented famous sports personalities. This questionable connection between smoking and sport, however, was not free from some controversies. The baseball player Honus Wagner, a staunch non-smoker, forced the company to retire the edition with his image, making it the most expensive collectable trading card to this day.

The association between health promotion and cigarettes might seem slightly odd and unlikely today, but it may as well have been the effect of a smartly orchestrated advertising strategy that diverted the attention from one kind of risk to another. By literally visualising other possible concerns (and offering advice about how to address them) they obliterated the one that they were actively producing. The sophistication of such an engineering of public opinion demonstrates nothing more than the fact that risk is an extraordinary tool for propaganda.

Besides this improbable alliance, there was something about how the cigarette cards were made that was particularly tuned-in with the broadcasting of safety messages. Cards were accurately illustrated and printed, with images on both sides, and a short text giving a brief insight into the subject. Issued in series so the smoker would stay loyal to the brand to complete each collection, cigarette cards were conceived to be desirable and exchangeable. Passing from the package, to the buyer and then being traded, sometimes given to children, they were effective tools for the dissemination of a message, which was not just briefly seen

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[231] W.D. & H.O. Wills and Imperial Tobacco *"Safety first": An album to contain a series of cigarette cards of national importance.* (Bristol: W.D. & H.O. Wills, 1934).
[232] Allan M. Brandt, *The Cigarette Century: The Rise, Fall, and Deadly Persistence of the Product That Defined America,* (New York: Basic, 2007), 52.

and read, but held in hands, pockets and albums for long enough to be understood and remembered. When collected in their bespoke albums, they resembled old fashioned picture books; the combination of text and image made them an ideal vehicle for teaching and memorising. It is hard to imagine a better method for inducing a safe behaviour than these pocked-sized exquisite miniatures with informative background. More than posters, pamphlets, exhibitions or even the cinematic projections of safety films, cigarette cards became an unlikely method for spreading safety messages before WWII.

There is little or no knowledge about the designers of cigarette cards, apart from the fact that they were directedly employed by the tobacco factories. [233] When examining their work, however, we can deduce that they were academically trained and skilled illustrators, arguably familiar with a repertoire of representational typologies. This skill in particular, contributed to the development of the instructional style, where an old fashion visual vocabulary was adapted to the new language of safety communication. Due to their commercial nature and portable size, for instance, cigarette cards did not have the constrains of other kinds of warnings. They did not require the immediacy, persuasiveness, and attention grabbing qualities of safety posters, but rather a more popular (and desirable) visual language. The more well-known and recognisable the subject, the better. Rather than warning their readers, the images on cigarette cards were instructive and instructional, presenting recognisable gestures that their readers could learn to perform in everyday life.

Let us examine a 1913 Will's *First Aid* cigarette card series to understand the importance of tropes in the visual language of emergency preparedness and risk. First aid, initially developed for medical professionals, had become a collective concern in the late 19th century, when Surgeon Peter Shepard and Colonel Francis Duncan began delivering emergency trainings first for the British and soon after all over the world.[234] The didactic material used in these trainings adopted the figurative methods of medical manuals. The focus was on instruction and repeatability, with recognisable *clichés* being ideal carriers of messages that were simultaneously urgent and universal. Figures were decontextualized from their surroundings; hands, arms, and legs often separated from the rest of the body; people in breeches were looked after and carried to safety (

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[233] Some of the tobacco companies had their own printing studios in the factory. "Buck" Duke, the founder of the American tobacco company in 1890 installed his own print shop in his Durham factory in order to produce colour lithographs for his cigarette cards.
[234] John Pearn, "The earliest days of first aid", *British Medical Journal,* (December 24 1994): 1718-1720. Accessed 20 October 2019, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2542683/.

Figure 48). Away from the formal aesthetic preoccupations of modernism (see Chapter 3), first-aid images on cigarette cards helped usher medical illustrations into the public domain, claiming the role of images in saving lives. The hand became a main actor in a series of apotropaic gestures; injured, dressed in bandages or compressed in a fist, it gave instructions or resembled a superstitious sign to ward off the evil eye (Figure 53, Figure 54). With their emphasis on gestures and salient details, these images have maintained an extraordinary allure, and influenced the imagery of artists and designers to this day (Figure 55, Figure 56).

FIGURE 53 "HOW TO DEAL WITH A FINGER BITTEN BY A DOG", 1913. ONE OF A SERIES OF 50 FIRST AID CIGARETTE CARDS ISSUED BY W.D. & H.O WILLS.

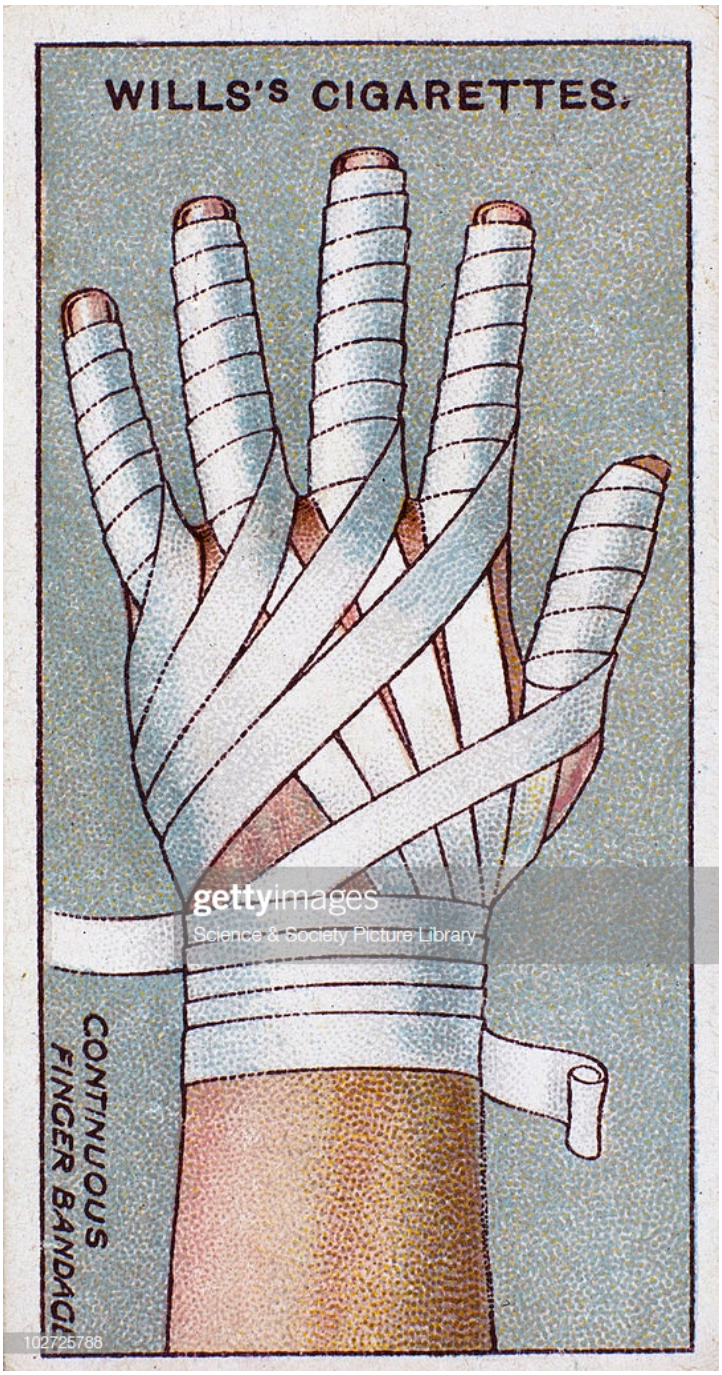

FIGURE 54 "CONTINUOUS FINGER BANDAGE",1913. ONE OF A SERIES OF 50 *FIRST AID* CIGARETTE CARDS ISSUED BY W.D. & H.O WILLS.

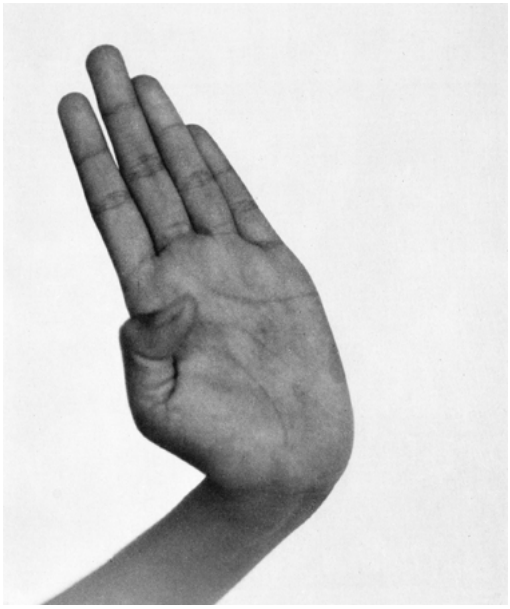

FIGURE 55 DOROTHEA LANGE. *HAND, INDONESIAN DANCER, JAVA*. 1958 PHOTOGRAPH.

FIGURE 56 CHRISTINA RAMBERG, *HANDS*, 1971. ACRYLIC ON MASONITE.

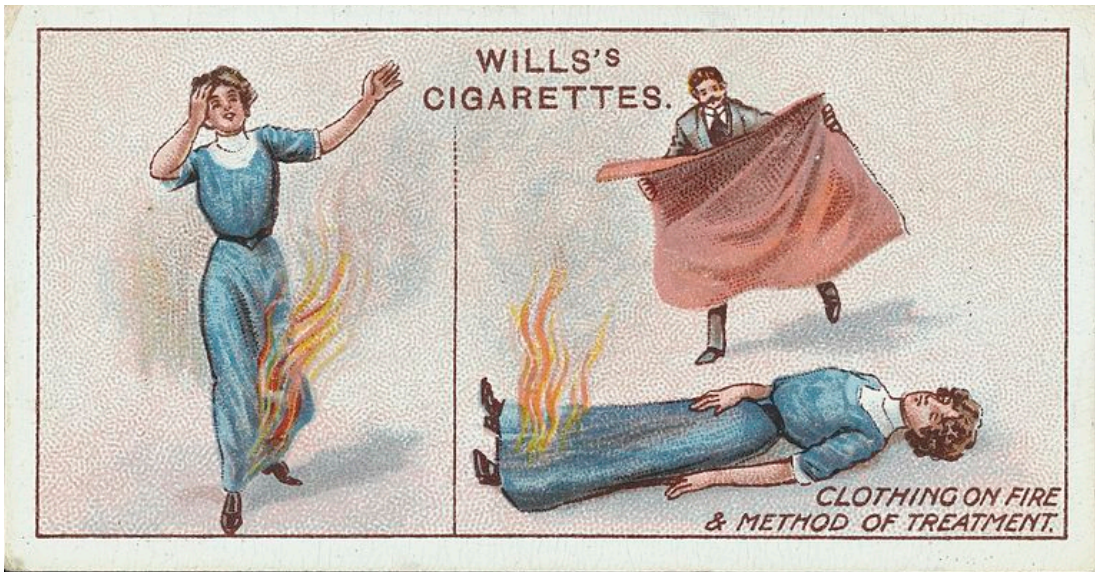

FIGURE 57 "CLOTHING ON FIRE AND METHOD OF TREATMENT", 1913.ONE OF A SERIES OF 50 FIRST AID CIGARETTE CARDS. ISSUED BY W.D. & H.O WILLS.

In the card "Clothing on fire and methods of treatment" (Figure 57), a woman is seen with the lapel of her light-blue dress caught in fire; her arms are lifted with one hand on her forehead as she advances in search for help. As the flame creeps gently up her dress in a pale red and yellow, she is frozen in a theatrical gesture of despair.[235] Every realistic element has been edited out and sacrificed to make space for the representation of the most composed version of a gesture. There is no room in the image for smoke, burns, or ruffled hair, instead the focus is on the perfect execution of an iconographic and theatrical cliché. On the scene at her right, she appears again lying horizontal with dignity and composure as a moustached, smartly dressed gentleman carries a sheet intended for covering her. With one arm on the body and the other resting on the floor, she evokes Edward Manet's (1832–1883) *Torero* (*Dead Toreador)* (1864), in a pose that, according to George Bataille, was copied from Velazquez and reproduced several times by the French painter. For Bataille, Manet's particular approach to representing death is "the clearest demonstration of his desire to subordinate (or sublimate) the horror of death in a naïvely unconcerned play of light."[236] Similarly "unconcerned", the figure in the cigarette card is the victim of an accident without pathos, probably an actress demonstrating for a small number of trainees. As the two

[235] Her pose recalls a stereotypical gesture of the Victorian Theatre as presented in Francois Delsarte's famous system of Oratory. See François Delsarte, *Delsarte System of Oratory,* (4th ed. New York: Edgar S. Werner, 1893). The book also contains details and instructions of *Chirologia, or the Natural Language of the Hand.*
[236] Georges Bataille, *Manet,* trans. Austryn Wainhouse and James Emmons, (New York: Skira, 1955.), 55.

characters in the cigarette card seem immersed in a sea of dots, whose spatial reality is only evoked by the shadows; the accident is cleared from its tragic nature and drama to become performative, a gesture suspended in a state of perennial rehearsal. The stipple printing technique used for these images gives an allegorical aura to the gesture, as the dots — used at the time for rendering texture and shades, become increasingly dense as they get closer to the subjects, emphasising their existence beyond any space-time coordinates.

FIGURE 58 "WOMEN FORM A CHAIN OF BUCKETS TO KEEP RESERVOIR FOR A TWO-MAN MANUAL FIRE PUMP", 1938. ONE OF SERIES OF 50 AIR RAID PRECAUTIONS CIGARETTE CARDS ISSUED BY W.D. & H.O WILLS, UK.

This abstraction of the gesture combined with an old fashion iconographic repertoire makes them particularly original as they anticipate the simplicity of Neurath isotype but retain a 19th century style typical of household medical manuals.[237] This combination gives the figures an allegoric status and recognisable meaning. It definitely might simply be the demonstration of first-aid actions, and yet, it evokes some sort of caricature, or a surrealist setting where a man is invited to extinguish the fire consuming a woman.

By hijacking matters of public concern such as road safety and first aid, cigarette helped cleanse the negative image associated with tobacco by reassuring their public using appealing and easily recognisable vignettes. Besides the politics of the tobacco companies, they prompted and instigated a sense of collective 'self-efficacy' that suggested optimist solutions to many problems of modern life. Rather than visualising disturbing threats, cigarette cards carried messages that were reassuring and encouraging, suggesting plans of action to even the most threatening situations. The production of cigarette cards was discontinued in 1917, during the First World War, due to a shortage in paper and printing

[237] I return to medical manuals in Chapter 6.

material, then reintroduced in 1922 during the interwar period. They were ultimately banned in 1940, labelled as "a waste of vital raw materials" and never reintroduced again. In a sense, cigarette cards were essentially a product of economic welfare and trust in rationalisation and modernisation; they were an affordable luxury that was acceptable in a time of peace but unnecessary during war. Their entertaining nature was somehow incompatible with the hard times of war, and yet they might also be seen as an early example of mass "edutainment" that reflects the historical concerns and interests of a very specific period in history.[238]

FIGURE 59 "MEMBERS OF THE VOLUNTEER MOBILE CORPS, MADE UP OF OWNER DRIVERS WHO PROVIDED TRANSPORT SUPPORT FOR THE AIR RAID PRECAUTIONS (ARP) SERVICE, TAKE PART IN A TRAINING EXERCISE", 1938. ONE OF SERIES OF 50 AIR RAID PRECAUTIONS CIGARETTE CARDS ISSUED BY W.D. & H.O WILLS, UK.

The historical importance of cigarette cards is particularly true for the series *Air Raid Protection* by Wills & Co. (1938) which translated in images the content of the first ever pubic information booklet in the UK: *Some things you should know if the war should come* (1939).[239] In 1938, with the threat of WWII imminent, the possibility of aerial bombing and use of poisonous gas was so real that in the UK it became compulsory for every citizen to own a respirator. Wills's fifty cards *Air-raid protection* series (1938) (Figure 58, Figure 59, Figure 60) featured sinister gas-mask wearing figures with instructions detailing how to wear a respirator or how to dispose of incendiary bombs. Most of the images depicted training exercises that took place at the time as part of the Air Raid Precaution Committee and

[238] The term edutainment was used as early as 1954 by Walt Disney to describe the True Life Adventures series. See: Walt Disney, *"*Educational Values in factual Nature Pictures*", Educational Horizons,* 33.2 (1954): 82–84.
[239] Great Britain, Lord Privy Seal, *Civil Defence: Public Information Leaflet N.1.* (1939). The British Government also produced a film in this occasion: *If War Should Come* (1939; London: Films Division of the Ministry of Information) Public Information Filler, BFI Archive.

Wardens' Services.[240] The unsettling effect of these rehearsed scenarios is a document of how pervasive the sense of danger was just before WWII. The instructional style of these cigarette cards may seem far from reassuring to us, living in a period of relative peace. Nevertheless, the cigarette cards presented the danger of being bombed as tractable and manageable. When WWII erupted, identical scenes became a reality and well-tested emergency procedures were applied. People became used to the war even before it had started, remindful of the previous conflict and accustomed to the ongoing preparedness infrastructure. Though lethal gas was not used, having clear emergency procedures must have felt, at the least, reassuring. It is impossible to calculate how many lives these images actually saved. However, the British Civil Defence must have found them useful, since in the following years similar subjects continued to be produced in the form of booklets.[241]

Figure 48 shows women and men hard at work in keeping a fire pump replenished with water. By presenting plans for actions (solutions rather than problems), cigarette cards such as this aimed at presenting the dangers and threats of modern life as controllable. In so many ways, they were tools for managing risk, even when tackling the dangers of war. Before disappearing at the end of WWII, cigarette cards were part of the collective effort for the 'construction' of safety. The diversity of iconographic motifs and their controversial association with a product that so obviously symbolises poor health makes them exceptional objects for understanding the aesthetics of risk and their entanglement with marketing and politics. They are also a unique iconographic resource. By depicting the safety techniques and emergency procedures that were in place during their short existence, cigarette cards show how creativity and design were put to the service of constructing safety and changing behaviour. Demonstrating the politics and aesthetics of reassurance in risk communication, they might have been more helpful than disturbing imagery and scare-tactics, as I will discuss in the following section.

[240] Thomas Roger, *Civil Defence: From the First World War to the Cold War,* (Historic England. 2016).
[241] Fallout protection booklets in the Cold War adopting the same instructional style, had different effects due to the transformed circumstances, as I will discuss in Chapter 6.

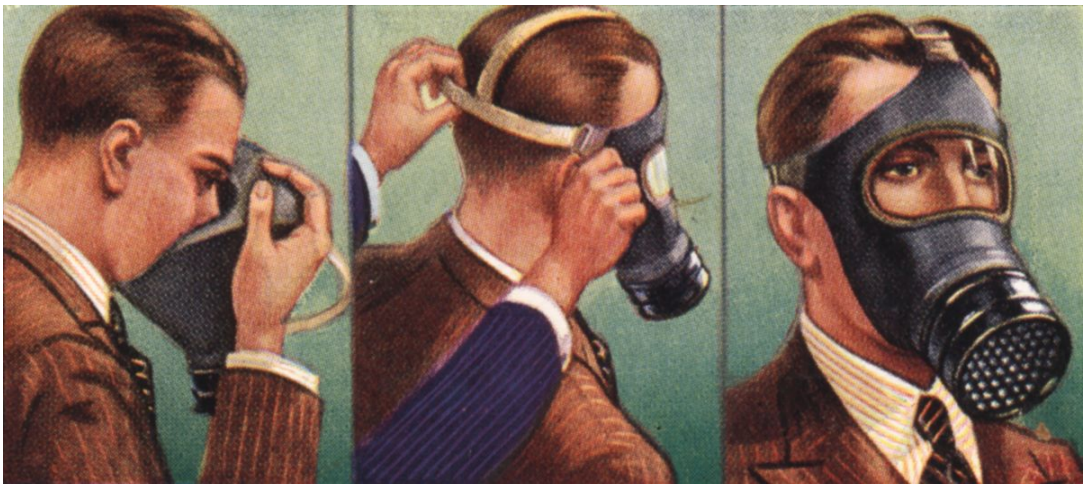

FIGURE 60 “INSTRUCTIONS FOR HOW TO PUT ON AND ADJUST THE CIVILIAN RESPIRATOR”. ONE OF SERIES OF 50 AIR RAID PRECAUTIONS CIGARETTE CARDS ISSUED BY W.D. & H.O WILLS, UK.

4.3 Images Like Alarms: The Cultivation of Unsettledness

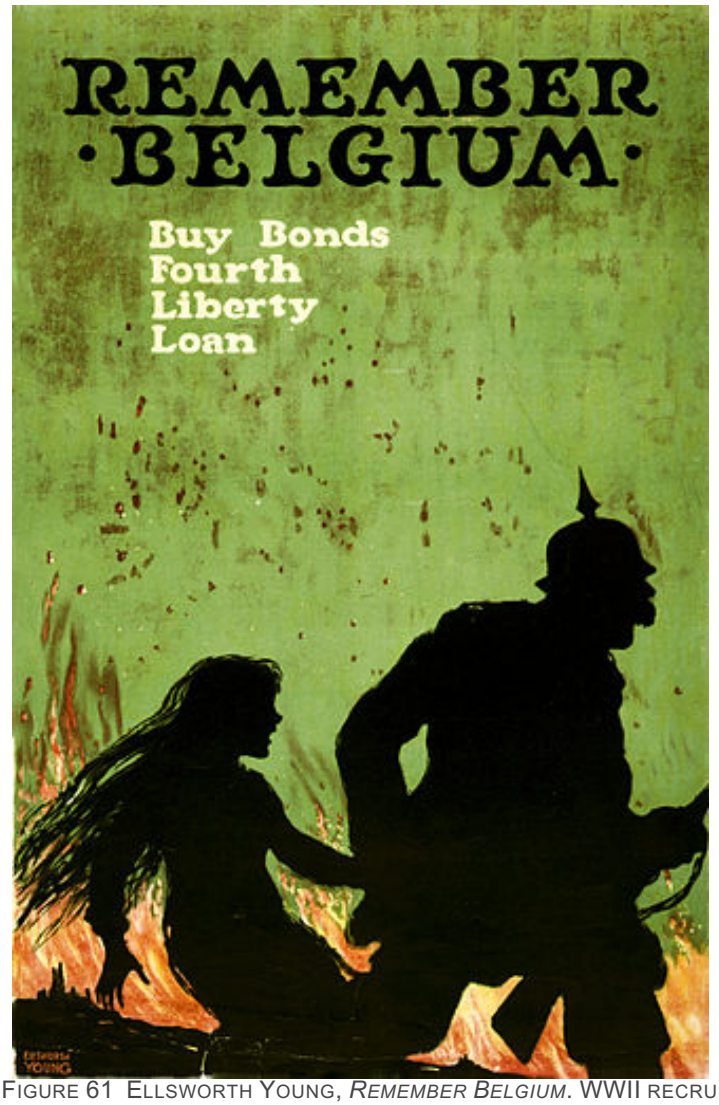

FIGURE 61 ELLSWORTH YOUNG, *REMEMBER BELGIUM*. WWII RECRUITMENT POSTER, 1917 USA

The instructional style and its reassuring contribution towards the construction of safety, played a significant role in the social, political and aesthetical transformations of early 20th century. If this reassuring "solution focussed" approach tended to rationalise the presence of the threat as something manageable, the campaigns against venereal diseases and war recruitment propaganda were far less subtle. At the opposite end of the instructional style spectrum, these campaigns made consistent use of "fear appeals", based on the belief that warnings are much more effective and memorable when they employ a stark, even disturbing, imagery. This section assesses the uses and abuses of such fear tactics in that past as much as today. Through discussing the circulation of gory images at various stages in the history of the last century, I will assess their ability to push people towards (or deter from) risky behaviours. Do distressing images actually work as either motivators or deterrents?

For political propaganda, the cultivation of unsettledness via the use of alarming imagery was a staple of the WWI recruitment process. Governments instigated civilians to take action against opposing countries by deploying what I shall call an ideological use of "threat images".[242]Exhortative posters across Europe, implored citizens to fight to protect their country by representing the enemy as a monster, a giant monkey, an octopus, or any other sort of allegorical figure.[243] Some of the propaganda posters went as far as deliberately spreading rumours or what we might call today "fake news". One of such examples is the poster *Remember Belgium* (1917) (

Figure 61), which portrayed a German solider (recognisable from the helmet) abducting a young woman against the backdrop of a gloomy green sky and a city set ablaze in the horizon. The image, alludes to an alleged massacre of civilians in a Belgium town, where several women and children were raped and tortured. An event that was widely reported by the news, alluding to Belgians not contributing, as of then, to the war efforts. As the text invites civilians to raise funds for the war, the discrepancy between the vulnerable young girl and the menacing figure of the German solider is clearly deployed to instigate outrage and revenge, as much as fear.

Compared to the visuals that I have discussed so far; this poster was the opposite of reassuring. It engineered (or tackled) the threat on an emotional level, alarming the population about the menacing enemy, but also justifying the war in the first place. Nor was the poster instructional in the strict sense; it did not demonstrate how to perform an action, but aimed at provoking in the viewer the need for that action to be taken. Upsetting imagery was used to shock the public into doing or supporting something. What are the implications of the use of such an imagery in and beyond the public perception of risk? Since shocking messages continue to be used to mobilise masses to this day, it is worth considering them from the point of view of risk perception.

[242] For the terminology "threat images" see Chapter 2, note 55.
[243] Richard Slocombe and Nigel Steel, *Posters of the First World War* (London : Imperial War Museum, 2014).

FIGURE 62 REGINALD MOUNT, *WARNING OF DANGERS OF CONTRACTING VENEREAL DISEASE*, ISSUED BY H. M.S.O., 1939-45, SCIENCE MUSEUM, LONDON.

FIGURE 63 SALVADOR DALI, *UNTITLED*, POSTER FOR THE CAMPAIGN AGAINST VENEREAL DISEASE 1942

Many of the public health campaign posters produced during WWII to raise awareness of the risk of contracting venereal diseases are also examples of the use of alarming images. The picture of a bride with a skull face in the famous *Venereal Campaign* posters by Reginald Mount (1943–1944) (**Error! Reference source not found.**) capitalised on a long allegorical tradition of warning against dangerous women and their devilish, seductive powers (Figure 64), (see also Chapter 3).[244] One of many with similar imagery across the world (Figure 63),[245] the poster might have been a well-intended instrument for the British Government to manage the risk of contagious diseases spreading. Nevertheless, the method for doing so was to provide an easy target and scare people away from supposedly promiscuous women, as was the case with the anti-rumour campaigns described in the

[244] The poster was issued by the Ministry of Information for the Ministry of Health and the Central Council for Health Education in the first national campaign against Venereal Diseases.
[245] Dali's poster, however, maintains a certain ambiguity in his representation, that recalls Morris's poster discussed in Chapter 3. Note the resemblance of the skull's mouth to a vagina dentata as discussed in Rebecca M. Bender. "The Morphing Body: Salvador Dalí's Skulls and the Female Form". *Rebecca Bender Blog*, 6 May 2014. Accessed 4 December 2019, https://rebeccambender.wordpress.com/2014/05/06/body-skulls-salvador-dali/.

previous chapter. The identification of the woman with the disease in these posters, however, had much more radical consequences. The alarming imagery became in fact part of a witch hunt that went far beyond the sphere of allegorical posters, as Figure 65 shows. Real woman where publicly shamed for being infected by syphilis, identified as the danger through their public photographs.[246] I will return later to this *Hall of Fame* image, but it is important to note here how Mount's poster does not really provide a plan for action for avoiding the disease, but sticks to a psychological and moral tone that gives the image itself an aggressive, threatening status (if not patronising). There is much more to say about these images and the way women are demonised and identified with venereal diseases, but this is beyond the scope of my investigation. My goal is to assess the efficacy of scare images regardless of their subject matter.

Does the appeal to fear encourage a rational, precise attitude for identifying a risk and minimising its negative effects — as advocated by a risk management mentality — or does it instead generate a pervasive sense of anxiety? Does the image (or the text) actually prescribe how not to catch a venereal disease or does it just present it as a sinister possibility that reinforces prejudices? Is not such an appeal to fear and punishment prone to misleading interpretations, exploitation and stigma? But, is not fear sometimes necessary in order to understand or recognise a risk? Answers to these questions are more complicated than it may initially seem. Shocking images can be used to manage risk as they make the threat visible, but without a specific advice or solution they generate a message that is more frightening then practical. On the other hand, even the most practical and neutral of instructions can be perceived as frightening, not to mention the fact that people are generally exposed to both simultaneously. News and images of disasters on the one hand and instructions on how to prepare for them on the other. Air-raid protection instructions, for example, attempted to reassure, but also carried with them a frightening sinister potentiality. They disseminated a whole new set of actions associated with worst-case scenarios, which people could hardly control. Combined with the tragic documentations of disease and the horrors of war, they provided the public with of a deeply distressing prospect of the possible future, entering the collective imaginary like menacing, haunting presences. If shock images contributed to

[246] Borrowing Austin's "speech acts" theory, it is worth noticing how the photographs galvanised processes of identification, elocution and administration of risk. For an analysis of risk in relation to Austin's "speech acts" theory see Michael Guggenheim and Joe Deville, "From preparedness to risk: from the singular risk of nuclear war to the plurality of all hazards", *British Journal of Sociology*, 69.3 (2018): 799-824. Here Guggenheim compared the naming of risk situations to Austin's "speech acts" theory. John Langshaw Austin, Langshaw *How to do things with words: the William James lectures, delivered at Harvard Univ. in 1955.* (Oxford: Clarendon Press 1975).

making risk “real” by creating the need for reassuring instructions, they also influenced the way instructions were produced and perceived. The experience of risk or endangerment, was, crucially, represented through both. Images inhabited a space where risks could be imagined and contemplated, assessed and perhaps minimised, before dangers stroke. Risks were both exercised and exorcised through the aesthetic experience that images provoked.

FIGURE 64 ALLEGORICAL ILLUSTRATION FROM *SYPHILIS: POEME EN QUATRE CHANTS'S* BY AUGUSTE-MARSEILLE BATHÉLÉMY, FRANCE, PARIS 1851.

4.4 Photography as Deterrent

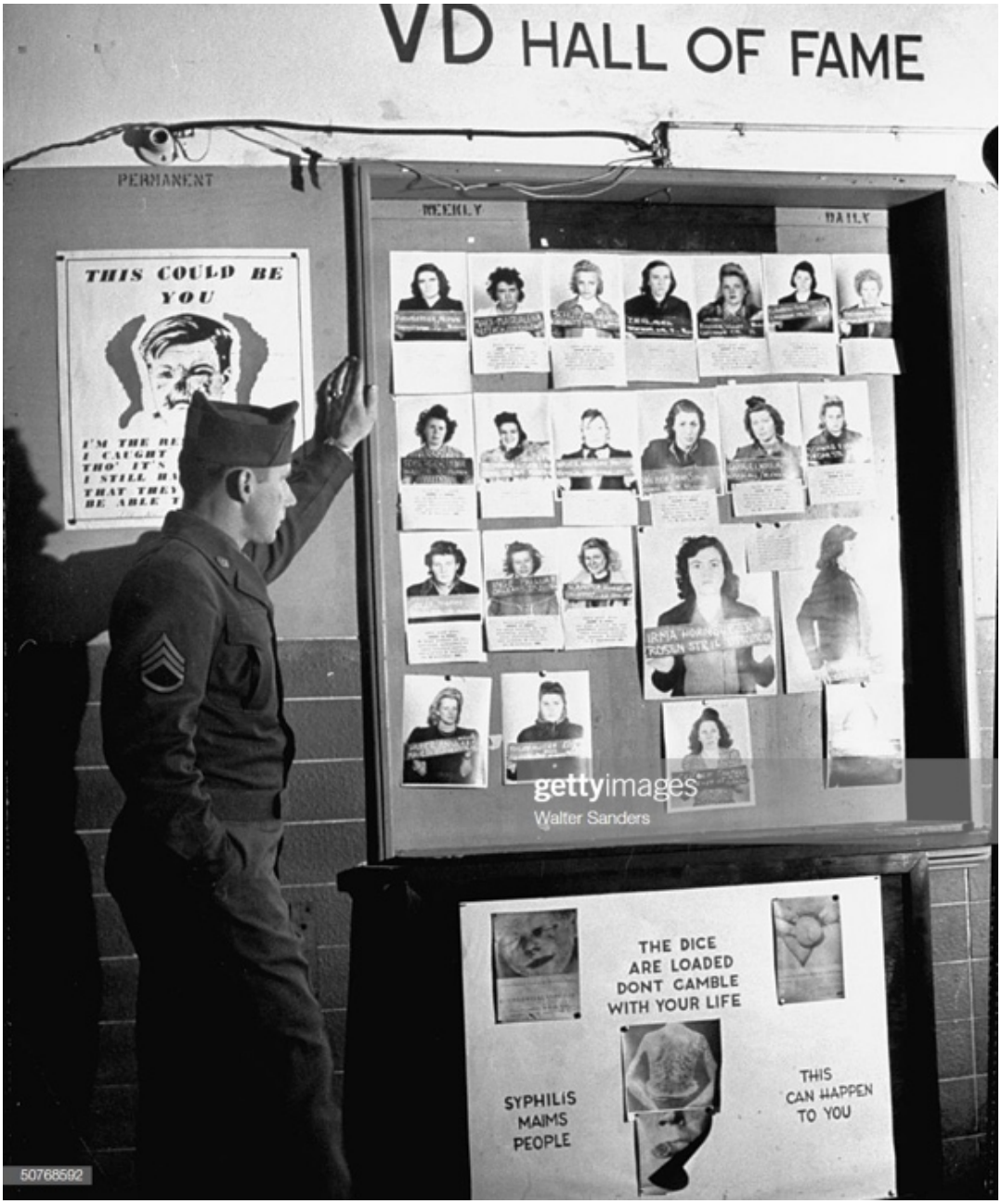

FIGURE 65 VENEREAL DISEASE "HALL OF FAME" BULLETIN BOARD SHOWING PICTURES OF GIRLS INFECTED WITH VD, 1947. PHOTO BY WALTER SANDERS, THE LIFE PICTURE COLLECTION, GETTY IMAGES.

Figure 65 is an early example of the use of photographs as deterrent in health prevention. Little is known about this picture, except for it being taken in Germany in 1947. Tested positive for syphilis, these women held a placard with their name and address, in what presents a disclosure of patient privacy. The disturbing "Hall of Fame" shames the victims

of venereal diseases for guilty of their illness; their face must be recognised and avoided as if they were wanted criminals. As if this was not enough, the photograph shows how these "mug shots" were presented alongside what looks like medical images of "bodies" affected by the disease. The display is orchestrated in order to maximise effect. The close up depersonalises the subjects, allowing the viewer to identify and stay away from dangerous women. "This Could be You" warns the poster on the top left corner, as a young solider is posing in front of the display. As far as alarming images are concerned, this shocking display overpowers all the designs that I have I discussed so far. Does the photographic medium allow for such an overpowering? What happens when the allegorical skull is substituted by the image of a real person, or a real body? In this section I will trace the uses and abuses of gory imagery as warning across different times in history and assess its ability to deter.

In the interwar period, the Pacifist Movement circulated photographs confronting the horrors of war. Pacifists believed that "crude realism" (and the fears that it may provoke) was necessary and ethically acceptable if used to understand and manage the *real* risks that a conflict implied. They saw shock photographs as an antidote against patronising propaganda that had the ability to disturb and traumatise much more than poster design. The pacifist argument in favour of alarming images was based on their claims regarding realism, but was shock effectively instrumental in changing not only the perceptions, but also people's decision making?

Abraham Games was the Official War Office Poster Designer for the UK Royal Armed Forces during WWII.[247] He was committed to representing the crude reality of the war in a time when the Ministry of Information was producing exhortative posters to boost people's morale. The slogan *Your Courage Will Bring Us Victory* (1939), was an example of such an attempt and was perceived as patronising by an increasingly aware and harassed population. In response to this propaganda, Games made posters such as *He Talked, He Died* (1943) (Figure 66), for which he used the newly developed technique of photographic silkscreens to incorporate a real photograph of a dead serviceman — a British soldier who was killed during the failed raid at Dieppe in August of 1942. The photograph was situated at the forefront within a red circle, linked to the mouth of a perpetrator of careless talk standing in the background. Games considered these images as representing the war with more realism, instigating in soldiers a sense of responsibility for their actions. His images were alarming

[247] Famous for his arresting and dramatic war posters, Games was a young designer enrolled in the Armed Forces when he wrote an anonymous report in 1939 to convince his superiors that poster designs were needed to educate the army in matters of hygiene and handling of weapons. When he became the first official war artist, his role transcended the military circle to educate the wider population about the atrocities of the war.

means for persuasion, as he did not shy away from representing suffering and understood that it would help deliver a message that he felt was necessary. His commissioners in the Armed Forces army accepted his method, however this was not the case when he began to use the same style in posters for the home-front.[248] The appeal to fear in these images was too sombre in a climate were the government was preoccupied with cheering the morale.

FIGURE 66 ABRAM GAMES, *HE TALKED. THEY DIED*, 1943. WWII POSTER.

If Games images were in conflict with the government's efforts to send positive messages, their disturbing effect was nothing in comparison with the images that were circulated by

[248] In 1943, Games made a poster, *Your Britain – Fight for it Now*, that juxtaposed the façade of a modernist school with a dilapidated building, the image of a meagre child and the word "disease". The poster was quickly retrieved as Churchill reportedly did not appreciate the use of the child.

the Pacifist Movement in the interwar period. In his text *Iconography of Injury*, John M. Kinder examines two publications, *War against War* by Ernst Friedrich (1924, Germany)[249] and *The Horror of It: Camera Records of War's Gruesome Glories* by Frederick Arthur Barber (1932, US) (Figure 67) that deployed shock tactics for the cause of pacifism.

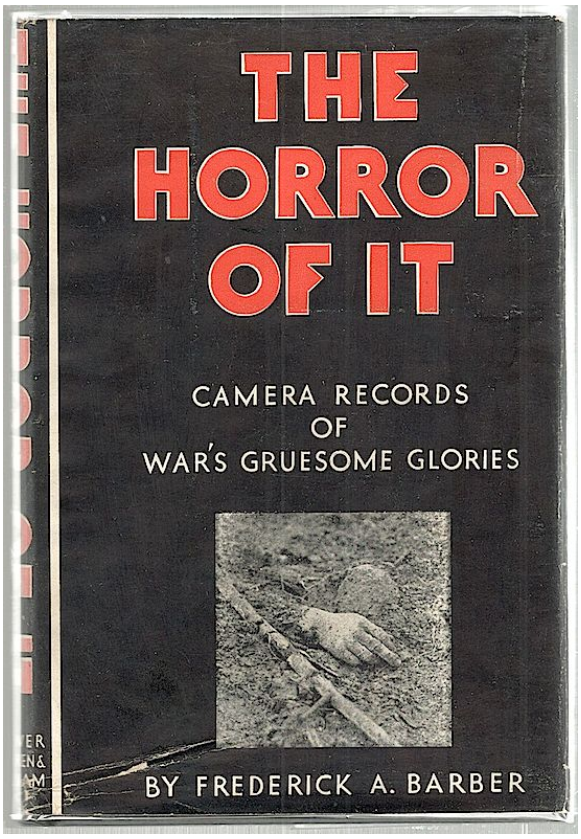

FIGURE 67 FREDERICK A. BARBER, *THE HORROR OF IT*, BOOK COVER, 1932.

War against War (1924) was originally published in Germany with multilingual captions. The book collected about 180 images juxtaposing disturbing photos of dead soldiers, leaked from military and medical archives, with images of toy soldiers and smiling young recruits to show the real effects of the war.[250] Published in the US about eight years later, *The Horror of It*, similarly, assembled 91 images in a before and after montage combining them with texts by politicians, poets and activists. The underlining idea of both these books was the belief that photography has the power to warn against the disasters of war in a similar way

[249] John M. Kinder, "Iconography of Injury: Encountering the Wounded Soldier's Body in American Poster Art and Photography of World War I," in *Picture This: World War I Posters and Visual Culture,* ed. Pearl James (Lincoln: University of Nebraska Press, 2009), 340-68.
[250] Ernst Friedrich and Bruce Kent, *War against War!* (Nottingham, England: Spokesman, 2014). Originally published as *Krieg dem Kriege* (1924) with captions in German, English, French, and Dutch.

to Goya's famous etchings.[251] Both books, however, encountered several resistances before and after their publications. Despite attempting to include original American photographs, Berber could not get permission from the Military Archives, with which he had consulted and ended up including images mainly from other countries (including some already published by Friedrich). It is unclear, however, how Friedrich had obtained the photographs.

The significance of these books lies in the fact that they appropriated classified material not meant for the public. The propelling force of their message was endorsed by the belief that photography was the medium of the truth and as such not intended to be public information, as the American War Department explained,

> To give out any such pictures would be against public policy. It would not be ethical; it would not be decent. Think of the Gold Star Mothers the country sent to France. Over there they saw the lovely cemeteries in which lie the dead of the American Expeditionary Forces. Perhaps their boys lie there. These mothers carried home in their mind beautiful pictures of these well-kept resting places. That is what they should have — we cannot spoil these memories.[252]

To this consolatory rhetoric, the photo books opposed images of corpses, devastated landscapes, starving children, and mutilated faces. The effects of the war on life and the environment were lied down for the reader to see in a time where the circulation of violent and disturbing war photographs was rarely, if not completely, absent from the public domain. During WWI, most European governments forbade the publication of war photographs and only a few images of the war had appeared before the publication of Friedrich's book. Most images of war consisted of mitigated representations, as the ones circulated by the Red Cross, characterised by a sentimental portrayal of soldiers. These images focussed on feelings of nostalgia, compassion, heroism, familiarity or positive memory and mitigated the unease about the war with uplifting quotes. Moreover, the guidance from public relations experts was to avoid using "negative suggestions" and "feeling of distance, fear or horror".[253] In short, the use of disturbing imagery was believed to discourage, or in contemporary terms, to reduce self-efficacy.

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[251] *The Disasters of War* (Los desastres de la guerra) is a series of 82 prints created between 1810 and 1820 by Francisco Goya (1746–1828).
[252] Frederick A. Barber, Carrie C. Catt, and Harry E. Fosdick. *The Horror of It: Camera Records of War's Gruesome Glories* (New York: Brewer, Warren & Putnam, 1995). Quote from General Irving J. Carr, Chief of the Signal Corps of the American War Department.
[253] Herbert C. Duce, *Poster Advertisin*g (Chicago: Blakely Print. Co, 1912), 174-175.

The disruptive power of the images was the most effective because of their source: war hospitals and military archives that had collected them for pure scientific purposes. Back in their original context, these images were not meant to be shocking but purely didactic. They would teach doctors about the human body and how to reconstruct it. However, as Michel Martini writes, "especially in the case of medical pictures, their exclusively scientific purpose and consistent lack of explicit visual connotation produces an even stronger dehumanising effect". [254] The book is one of the first in which shock photographs are shared deliberately to move public opinion. Friedrich's process of appropriation, as much as the photos' inherent qualities, makes the book different from any dramatic war reportage to come; though shocking, excruciating, yet memorable these are photographs without pathos. *War Against War* showed images that were not supposed to be seen: their intrusion in the public sphere subverted political and visual norms.

Should alarming images be used as warnings to change people's propensities to risk taking? "This is photography as shock therapy", maintained Susan Sontag in a review published in the occasion of one the numerous reprints of War Against War.[255] The cause of pacifism and Friedrich's commitment to such a cause (he was exiled and jailed because of the book), for Sontag justified the need for these images to be seen. Looking at the photos of poor victims was a shock worth taking only if for a good cause. Were the images, however, actually instrumental to such good cause? Only six years after its publication, *War Against War* had been reprinted 10 times in Germany and translated into several languages. No matter how shocking and moving the images could have ever been, they did not stop the war. How naive of Friedrich to think that a book of photographs could change the future.

[254] Michele Martini, "War against War!: pictures as means of social struggle in post-First World War Europe", *Visual Studies* 32.4 (2017): 329-344.
[255] Susan Sontag, "Looking at war." *The New Yorker* 9 (2002): 82-98.

FIGURE 68 JOEL-PETER WITKIN, *ANNA AKHMATOVA*, 1998. PHOTOGRAPH.

As historians, art critics, sociologists, semioticians, and psychologists still debate the presentation of the shocking images of today's wars, the aesthetic relevance of the photos in *War Against War* has surpassed both their initial didactic intent and their use for pacifism. [256] Gory has become an entertaining style more than anything else. Yet, it is still worth asking what are the implications of medical or forensic images becoming part of the public domain in the history of art. Do they have a role besides the mass dissemination of gory imagery in popular culture?

Marking a rupture from any encouraging or allegoric rhetoric of risk, the kind of forensic images seen in *War Against War* made an irreversible mark in the collective imagination of the first half of the 20th century, serving the cause and purpose of all sorts of ideologies. Hospital images appeared in Paul Schultze-Naumburg's *Kunst und Rasse* (Art and Race),[257] where the juxtaposition of modernist statues and ill, deformed bodies made the chilling

[256] For recent public debates about violent images in the public realm see for example "Symposium on Photography XXI: The Violence of Images", Camera Austria, Graz, Austria. October 2018. See also "Violence and Representation", a symposium at Tate Britain, 2010. See also Nancy Armstrong and Leonard Tennenhouse, eds, *The Violence of Representation*: *Literature and the History of Violence* (London: Routledge, 1989).
[257] Paul Schultze-Naumburg, *Kunst Und Rasse* (München: Lehmann, 1942). 1st Edition 1928.

argument for 'pure' race. During WWII, war photos of destructions inspired masterpieces such as Picasso's *Guerinca* (1937) and Virgina Wolf's *Three Guineas* (1938).[258] Shock images have since been among the most discussed in academic and artistic circles: from the Young British Artists' taste for gruesome details (think Damien Hirst and the Chapman Brothers) to horror and splatter movies (Dario Argento), to Joel Peter Witkin's macabre compositions (Figure 68). The linage of gruesome aesthetics is often compared to Medieval and Baroque taste for the macabre and to the German art historical tradition. However, what happens if we try to read the macabre style in light of what we now know about the brain?

Neurological research shows that when we see images of violence the amygdala, considered the body's alarm system, responds by altering the production of hormones.[259] Our defence mechanisms become activated and we go into survival mood, allowing us to be much more perceptive towards the world around us. Violent images demand our attention. It is not a surprise, then, that artists have exploited shock in all possible ways. Yet, as Sontag famously argued, we also get easily desensitised from overexposure to violent images; shock tires.

Friedrich's commitment to a good cause might be seen as naive in an age of "shock fatigue" such as today, where alarming images are taken, appropriated and repackaged by "attention seeking" individuals for many professional or personal reasons. Yet his process of "repackaging" appropriated material foreshadowed the contemporary artistic practice of "appropriation art".[260] In the 1980s, Peter Kennard created an antinuclear poster campaign, *Target London,* by combining the reassuring text from *Protect and Survive* (a governmentally sponsored booklet with survival instructions for the nuclear fallout) with shocking images. More recently, artists Adam Broomberg & Oliver Chanarin worked with the Archive of Modern Conflict to select some of their most disturbing and violent images as illustrations for the King James Bible (Figure 69)[261]. In 2019, acclaimed photographer Wolfgang Tillmans, chose to project some of the *War Against War* photographs as a backdrop for the first operatic version of Benjamin Britten's War Requiem.

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[258] Virginia Woolf, *Three Guineas* (New York: Brace & Harcourt, 1938).
[259] Alia-Klein N, et al. "Reactions to Media Violence: It's in the Brain of the Beholder." *PLOS ONE* 9 9 (2014): e107260.
[260] David Evans, *Appropriation*. Documents of Contemporary Art Series, (Cambridge, MA: MIT Press, 2009).
[261] Adam Broomberg and Oliver Chanarin, *Holy Bible,* (London: Mac Publishing, 2013).

FIGURE 69 ADAM BROOMBERG AND OLIVER CHANARIN, *HOLY BIBLE*, 2013 © ADAM BROOMBERG, OLIVER CHANARIN.

At the 2009 Venice Biennale, Mexican Artist Teresa Margolles, known for using human remains as artistic material, made an installation paraphrasing on the escalating drug war in northern Mexico, titled *What else could we talk about?* (2009). The decadent Venetian palazzo, hosting the installation, was mostly empty with the exception of buckets of dirty water placed in the corners of each room and some mops, which the gallery invigilators used at intervals to wipe the floor. The water, I learned after walking through the space, was infused with the fabrics used to collect blood or dirt from murder scenes, that the artist had picked up over her necro-geographic journeys. On leaving, I was offered a credit card (the vernacular tool to cut cocaine before sniffing) with an horrendous close up of a burned head on it. Most probably a forensic photograph, it recalled the morbid imagery of Mexican newspapers, with their habit to put one or more violent episode on the front page. Taking the card as a memento of that extraordinary work (a stark counterpart to Venice souvenir's culture), I carried it with me in my wallet for a while, until I could not bear the sight of the image any longer. I could never get desensitised to such an image, yet there was nothing I could do about the violent crimes in Mexico. It was not until cigarette companies begun

labelling their packages with images of the traumatised body that I thought about that image again.

With different degrees of intensity, these examples alert us of the aesthetic effects of disturbing images that compel us to confront fear.[262] They touch us emotionally and affectively but they hardly function as real deterrents. Rather than real violence, shock images confront the politics of representing violence in art and in the media. Yet, the question about the ability of images to work as deterrents (for risk taking) is still an open debate, especially since the World Health Organisation has made recommendations to feature upsetting images on cigarette packages. Ironically, the most significant and yet improbable example of the legacy of Friedrich's appropriation of forensic images and of the close up on the "Hall of Fame" display, may come from such use of gory imagery. In recent years, these have become a mandatory legal requirement in the UK and internationally. Once again, medical images used for scientific purposes are broadcasted to the world in order to manage the health risks that smoking presents.

Initially piloted in Australia, the practise of stamping cigarette packages with horrid images is a measure justified by the need to dissuade smokers from smoking all over the world (Figure 70). Close ups of tumours, meagre new-borns, mangled bodies (the face is rarely recognisable) are passed from hand to hand, showing smokers (and their loved ones) in graphic style the consequences of their behaviour. The gory image is apparently the perfect, unforgettable warning and the eloquent visualisation of the risks that one chose to take. "It is at your own risk" the images cry out, but their positioning in the public eye is a form of displacement that attempts to use photography as a deterrent. The cigarette health warnings, the Hall of Fame, and Friedrich's book all have in common this characteristic, although the causes and the mechanisms are very different.

[262] Fear is, of course, the main theme of this chapter. The examples presented are multifaceted artworks and it is only to stay focus to the theme of this chapter that fear is emphasised in this occasion.

FIGURE 70 TOP LEFT TO RIGHT CIGARETTE PACKAGE'S FROM ACROSS THE WORLD: TAIWAN, INDIA, BELGIUM, THAILAND, IRELAND, USA. BOTTOM: UK, CHINA, URUGUAY, AUSTRALIA, MEXICO.

A report from the Word Health Organisation, signed by numerous scientists, lead to the widespread legislation of adding the gory images on cigarette packages adopted across the EU.[263] The recommendations were based on a pilot experiment carried out in Canada, where many of the interviewees declared that the new labelling had an impact on their decision to stop smoking.[264] Despite this high-profile application in international law, there have been researchers who raised important arguments against the experiment. In an article titled "Ignoring theory and misinterpreting evidence: the false belief in fear appeals", a team of Dutch social psychologists argued against the intuitive thinking that people will change their *risky* habits when confronted with the negative consequences of their behaviour.[265] For them this is true only in exceptional circumstances and "fear-appeals" can in fact be counter-

[263] World Health Organisation, *Guidelines for implementation of Article 11 of the WHO Framework Convention on Tobacco Control (Packaging and labelling of tobacco products*). 2008a. Who.com, accessed 4 December 2019, https://www.who.int/fctc/guidelines/adopted/article_11/en/. See also WHO, *Sources used for the development of the guidelines for implementation of Article 11 of WHO FCTC* 2008b, Who.com, accessed 4 December 2019, https://www.who.int/fctc/treaty_instruments/adopted/eleven/en/. And WHO, *Evidence brief: How large pictorial health warnings on the packaging of tobacco products affect knowledge and behavior* (Copenhagen, Denmark: WHO Regional Office for Europe, 2014). Accessed 4 December 2019, https://apps.who.int/iris/handle/10665/164593.

[264] David Hammond et al. "Graphic Canadian cigarette warnings labels and adverse outcomes: Evidence from Canadian smokers," *American Journal of Public Health*, 94.8 (2004): 1442–1445.

[265] Kok, Gerjo et al., "Ignoring theory and misinterpreting evidence: the false belief in fear appeals," *Health Psychology Review*, 12. 2 (2018): 111-125. This article cites a meta-analysis carried in 2000, which concluded with the recommendation that "Fear appears to be a great motivator as long as individuals believe that they are able to protect themselves". A misleading interpretation of this statement is responsible for the recent legislation. The quote is from Kim Witte and Mike Allen, "A meta-analysis of fear appeals: Implications for effective public health campaigns," *Health Education & Behavior*, 27 (2000): 591–615, 607.

productive.[266] In support of their argument they have compared theoretical literature and empirical evidence including neurological research that uses imaging techniques to register smokers' levels of attention (their eye movements) whilst they are exposed to shock images.[267] As a result of these tests they suggest that apparently smokers react defensively and avoid the scary information, "presumably because smokers don't want to be confronted with the negative consequences of their behaviour".[268]

More crucially, these studies confirm "efficacy levels" and not fear as the main factors responsible for deterring people from risky behaviours.[269] Highest levels of success are obtained when, even in high level of risk perception due to fear appeals, an even higher level of self-efficacy improvement is communicated. In short: fear appeals are a great motivator *only if* individuals believe that they are able to protect themselves. [270]

To summarise, the study not just demonstrates that shock images have no real impact in scaring people off smoking, but it claims that to deter risky behaviours health campaigning should be encouraging, give reasonable plans of action and demonstrate that such goals are achievable. In short it should reinforce self-efficacy by being reassuringly encouraging. Expanding the impact of their findings beyond the specifics of smoking habits and cigarette labels, moreover, the article adds that "Threatening information is processed as threatening information regardless of whether the threat is related to smoking, sedentary behaviour, dental hygiene, cocaine binging or condom use".[271] These findings in the field of social psychology provide relevant insights into the study of risk aesthetics. According to their argument, the aesthetics of reassurance embodied by the instructional style may be preferable to improving safety. By presenting a challenge as an achievable goal, instructions and appeals to self-efficacy may be less off putting than shock tactics and therefore may be more effective tools in managing risk. Alarming images, on the other hand, may just be very

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[266] Already in 1953, Janis and Feshbach suggested the presence of negative emotional reactions to anxiety arousing messages: inattentiveness, aggressiveness and defence avoidance. See Janis Irving and Seymour Feshback, "Effects of fear arousal", *Journal of Abnormal and Social Psychology* 48.1 (1953): 78–92.
[267] Rob Ruiter et al., "Sixty years of fear appeal research: Current state of the evidence", *International Journal of Psychology*, 49 (2014): 63–70.
[268] Gerjo Kok et al. "Ignoring", 113.
[269] See for example: Jens O. Zinn, "The meaning of risk-taking – key concepts and dimensions," *Journal of Risk Research*, 22.1 (2019): 1-15. Risk perceptions and behaviours vary according to the calculation and combination of the following factors: firstly whether individuals are threatened or not (a combination of the severity of the threat and its susceptibility in one individual circumstances), secondly if they have high or low self-efficacy levels (the belief that something can be done to prevent the threat and the confidence in own ability to change such behaviour), and finally if a relevant behavioural change takes place and not just the intention of it.
[270] Gerjo Kok et al, "Ignoring",121.
[271] Gerjo Kok et al, "Ignoring",112.

disturbing and affect people's levels of anxiety, by painting the world with hopeless colours, i.e. they might irreversibly disrupt.

Susan Sontag's remarks on the de-sensitization of our affective responses to shock images when we are repeatedly exposed to them, may provide an interdisciplinary argument to strengthen my argument against shock images in managing risk. According to her writings (and their numerous interpretations) the compassion that we feel when we witness the pain of others, becomes an "affective script" that is rarely translated into action.[272] Perceptions matter, but for images to be real deterrents, shock should become a process of action, repetition, habit and behaviour. If confronted by the pain of others we eventually do not (or cannot) take any action, the same happens for images that are supposed to shock us into (or away from) something. Our inability to intervene dissolves our confidence in producing change. In a way, this argument also explains why Friedrich's book did not manage to stop the war. By using hospital files and classified military archives, the images in *War Against War*, ignited the Pacifist Movement, but the question should be, did their public have a say about the war? How many of them had a real choice in joining the army? In a sense, the level of "self-efficiency" among the Pacifist Movement was too low compared to the political and economic investment in the Second World War.

Images have for a long time been understood as deterrents, but perhaps the focus should shift from the effects of fear to the politics of agency and self-efficacy. What happens when we see images of slaughtered animals, melting and collapsing icebergs, seas engulfed with plastic? In such a case, shock images may be effective in persuading someone to become a vegetarian or to stop using plastic, since they will be empowered to own their choices. Moreover, in the age of social media, shock images reverberate in the public debates through sharing, memes, and creative appropriations to generate a "space of proximity" that is continuously reinforced by further reiterations. [273] Eventually, the laws of big numbers may enable lobbying for greater change, especially if scientific evidence supports their claims.

Behavioural psychology provides evidence in support of instructions and reassuring tones being a more effective rhetoric for managing risk. A recent study on cigarette labels, challenges the assumption that scare tactics are an effective deterrent against risk-taking, instead it suggests that improvement in self-efficacy and reassurance are more successful in motivating people to stop smoking.[274] With their distinction between "fear appeals" and "self-efficacy improvement" behavioural psychology provides the technical terminology

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[272]Carolyn Pedwell, "Mediated habits: Images, networked affect and social change," *Subjectivity* 10.2 (2017): 147-169.
[273] Pedwell, "Mediated habits".
[274] Gerjo Kok et al, "Ignoring", 112.

and evidence to describe what I have in this thesis called "alarming images" and "instructional style". On the one hand, the images of *War Against War* are examples of fear appeals, on the other *Safety-First*, Cigarette cards and Met Life advertisements promote self-efficacy.

The correspondences between visual analysis and scientific terminology is particularly fruitful for the study of risk and art. Art and design provide an endless pool of methodologies and possibilities for the design of inventive interventions for behavioural change beyond the overrated use of fear appeal. The study of images, their history, their styles, and the effect they had on public opinion can help social psychologists and campaigners to identify better strategies for behavioural change. Finally, it enables a closer understanding of the mechanisms of risk communication (and manipulation) for the wider population, opening the path for genuinely interdisciplinary research on how to better communicate (and produce) risk today.

4.5 Conclusion

Is a reassuring instructional style more effective than shock tactics in managing risk? In answering the principal question of this chapter, it seems that research in social psychology supports this hypothesis. Solution-focussed risk communication seems to improve levels of self-efficacy better and therefore to be more helpful in managing risk. On the other hand, as I have demonstrated in the first part of this chapter, with all its corruptions, manipulations, and proactive reminders of potential disasters, the aesthetics of reassurance can also amplify risks and how they are perceived. Despite attempting to be neutral, some instructions carry with them a frighteningly "sinister potentiality".[275] On the other hand, threatening images still carry a significant resonance in the collective perception of risk, their shocking effect is particularly striking when images or footage is leaked, or presented "out of place".[276] The circulation of medical, military, and forensic images in the public domain and their appropriation in cultural and visual artefacts play a significant part in the perception of risk. It can provoke a "shock to thought" that, as Brian Massumi pointed out, is necessary for social and individual change.[277] The problems encountered by behavioural sociology in

[275] I return to the discourse of sinister potentiality in Chapter 7.
[276] Similar observations have been presented by Mitchell in discussing Abu Ghraib images in his essay in "The life and death of images". See Chapter 2 and William J. Thomas Mitchell, "Cloning terror" in *The Life and Dath of Images*.
[277] Brian Massumi, *Parables for the Virtual* (Durham and London: Duke University Press, 2002).

addressing these complexities can hardly be resolved, in my view, solely by neurological and behavioural experiments. However, an enquiry into the visual strategies of representing risk may escape the schematisation of predictive behavioural hypothesis and enable a thoughtful debate about how to deal with such challenges to us, as individuals and as a society. With different aesthetic results and outputs, shock and reassuring visuals are both strictly entrenched with the politics and ethics of managing and perceiving risk. Risk aesthetics, in conclusion, are a genuine demonstration of how aesthetics is political. Aesthetic choices have political (and ethical) consequences, as poetical choices too, have aesthetic consequences.

5 CHAPTER. A Manual for Every Disaster

FIGURE 71 A MANUAL FOR EVERY DISASTER. SNAP SHOT OF THE PERSONAL ARCHIVE. FRANCESCA CAVALLO.

5.1 Introduction

In the previous chapters I have illustrated how risk messages and instructions have permeated the visual culture of the first half of the 20th century, promoting the belief that risk could be managed with appropriate behaviour. Through the development of a repertoire of instructions and warnings, a new risk aesthetic emerged, one that focussed on representing the invisible risks of modern life in order to avoid or manage them. Tips for preventing accidents on the road, in the workplace, and in the household became pervasive. With the end of WWII, however, the scale and quantity of risks that needed to be managed had grown exponentially. Concerns with human annihilation infiltrated political agendas and movements, local communities and individuals and with them emerged a complex infrastructure that dealt with disasters of a different kind. The imagination of the worst-case scenario became an intellectual and physical exercise directed to prepare for it: the coming apocalypse did not require representations, but plans of actions.

This chapter will focus on those plans of action, in particular on the ways guide books have attempted to demonstrate to people how to survive disasters. Survival manuals have been mistakenly ignored by scholarly interest, especially in comparison to the attention

received by other literary and cinematic products of the post war period. Devoid of artistic claims and dramatic appeals, survival manuals represent an instructive lens for exploring the aesthetic dimension of risk. Proposing coping strategies for real and imagined threats, manuals have turned the fears of the future into action plans made of bullet points and simple illustrations. This formula, I argue, has enabled for even the most daunting of threats to be presented as something that can be managed. From civil defence booklets to survivalist literature, from adventure guides to self-help publications, the survival manual template has successfully infiltrated cultural production and, as we will see, artistic practices, even if not always reliable.

I will discuss the evolution of the survival manual as a genre through examining various examples from a personally curated digital archive of survival manual book covers, which I have been assembling for the past few years (Figure 71). In the first section, I will focus on Cold War era civil defence booklets and on their clumsy attempts to turn the risk of nuclear destruction into action plans for survival imbued with self-help advice. In the second section, I discuss how, alongside these official manuals, a new genre of "multipurpose" survival emerges in the late 1960's, including the guides circulating among the *survivalist* movement. Providing an outlet for annihilation fantasies and adventurous lifestyle aspirations, survival manuals' have since relied on the same rhetoric to reach global popularity. Their success, I shall conclude, might not have been the result of their reliability, but rather the reassurance or promises that they offered the reader.

5.2 Action Plans for the Apocalypse

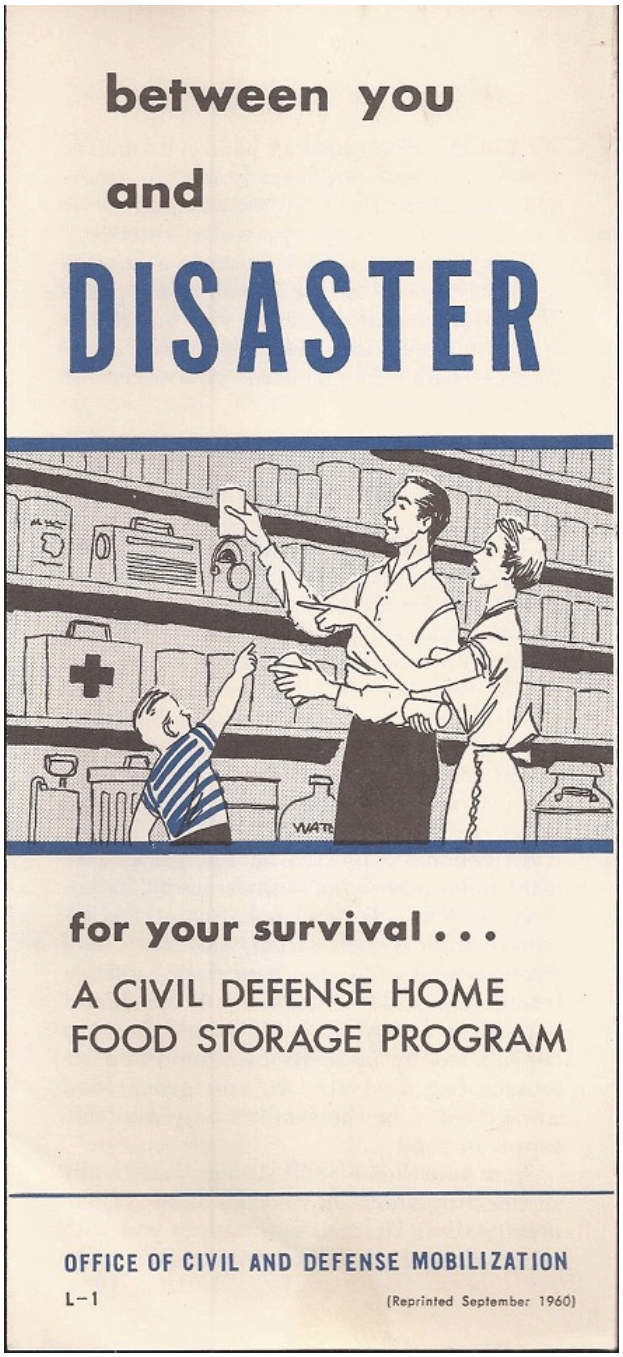

FIGURE 72 *BETWEEN YOU AND THE DISASTER*, CIVIL DEFENSE PAMPHLET L-1, 1950'- 1960S MICHIGAN MUSEUM OF CIVIL DEFENSE.

"Between you and disaster" states a 1960's American leaflet featuring a stereotypical scene of a family at the supermarket (Figure 72). Produced as part of a preparedness programme,

it invited the American consumer to buy stocks of food and medicines to be prepared for the nuclear fallout. In the post war period, the communication of risk became an unsettling, often contradictory exercise. Leaflets such as this were intended to simultaneously acquaint the population with the possibility of a disaster and reassure them with more or less clumsy how-to survival techniques. The nuclear bomb had confronted humankind for the first time with the concrete possibility of its own annihilation. To borrow Ulrich Beck's terminology: transforming the apocalypse into a man-made risk.[278] As the end of the world was no longer just a myth but a possible future, the need to prepare for it complemented the long lasting narratives and representations of the apocalypse in literature and art. From an institutional perspective, visual representations of "the end" (or the worst-case-scenario) had to be institutional, illustrative, didactic, accessible, and close to home. Thus, the apocalypse came dressed up in a "safety suit" in the form of a guidebook.

Produced initially for wartime civil protection campaigns (see Chapter 4) the genre of survival manuals quickly gained popularity, as a possible thermonuclear war haunted the future of humanity.[279] Between the 1940s and the 1960s, both the British and the American Civil Defence Corps distributed thousands of booklets containing necessary how-to steps for surviving a nuclear fallout. These instructional booklets integrated various measures designed by their respective governments. In a process of "domestication of doomsday" civilians were asked to build shelters, stockpile food, but also to learn a repertoire of gestures to perform in case of emergencies.[280] Radio messages, drills, and training videos targeted a variety of disasters, from nuclear fallout, to tornados, to electricity shortage. A whole infrastructure of risk was produced where emergency could be rehearsed and performed as a collective endeavour.[281] New procedures were tested and codified, setting the foundations for the contemporary "all hazard" preparedness system in the US: the adaptation of wartime emergency techniques for disasters of any kind, natural and manmade.[282]

"The first mandate for the American people during the early months of the atomic age was to get a grip on themselves, work together, and try to avoid future annihilation", writes

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[278] Ulrich Beck, *Risk Society: Towards a New Modernity*. (New Delhi: Sage, 1992) (translated from the German *Risikogesellschaft,* Frankfurt, 1986).
[279] This was indeed an existential threat, although, at the same time, one that culturally affected some countries more than others. The cigarette cards album Air-raid protection (1938) discussed in Chapter 4 is one of the early examples; in the USA, the Civil Defense published *What Can I Do: The Citizen's Hand Book of War in 1946*
[280] Tom Vanderbilt, *Survival city: adventures among the ruins of atomic America* (Princeton: Architectural Press, 2002), 96.
[281] Tracy Davis, *Stages of Emergency: Cold War Nuclear Civil Defense* (Durham, NC: Duke University Press, 2007).
[282] Joe Deville and Michael Guggenheim, "From preparedness to risk". The term "preparedness" was not actually used at this time, but it was in this time that the infrastructure associated to such a concept was developed.

historian Michael Scheibach.[283] The performance of military superiority was, of course, the other side of this enterprise. Governments of the opposing blocks were pursuing politics of nuclear armament under the MAD doctrine (Mutually Assured Destruction). The US was reinforcing its military defence and monitoring systems,[284] and increasingly powerful bombs were detonated in deserts and the paradise island of Bikini Atoll with devastating, yet unanticipated consequences. Despite these performances of military superiority, it was impossible to estimate the long-term effects of the new bombs, let alone offer the appropriate survival advice to the population.[285] The nuclear bomb was a relatively new technology. Moreover, fear and panic were considered as dangerous as actual conflict, so rather than focusing on accurate estimations of damages, it was the morale of the population that had to be targeted. The design of nuclear fallout booklets was instrumental to these didactic purposes. Booklets such as the famous *Bert the Turtle Says Duck and Cover* (1951) (Figure 73), was tasked with normalising even the most terrifying of situations and to help adults and children navigate the wide range of emergency measures set in place for them.[286] After the intense iterations of the danger of nuclear war, everybody became a survivor haunted by a possible retaliation. The emphasis on preparedness attempted to tackle, but consequentially also contributed to, the creation of, a proverbial end-of-the world paranoia.

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[283] Michael Scheibach, *Atomics in the Classroom: Teaching the Bomb in the Early Postwar Era* (Jefferson, North Carolina: McFarland & Company, Inc., Publishers, 2015). See also Paul S Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon, 1985).

[284] Built in 1954, the Distant Early Warning system (DEW Line) consisted of sixty three stations hosted in Buckminster Fuller's iconic domes.

[285] RAND corporation made some pioneering research in this regard. See Chapter 8.

[286] US, Federal Civil Defense Administration, *Bert the Turtle Says Duck and Cover* (Washington, D.C., 1951).

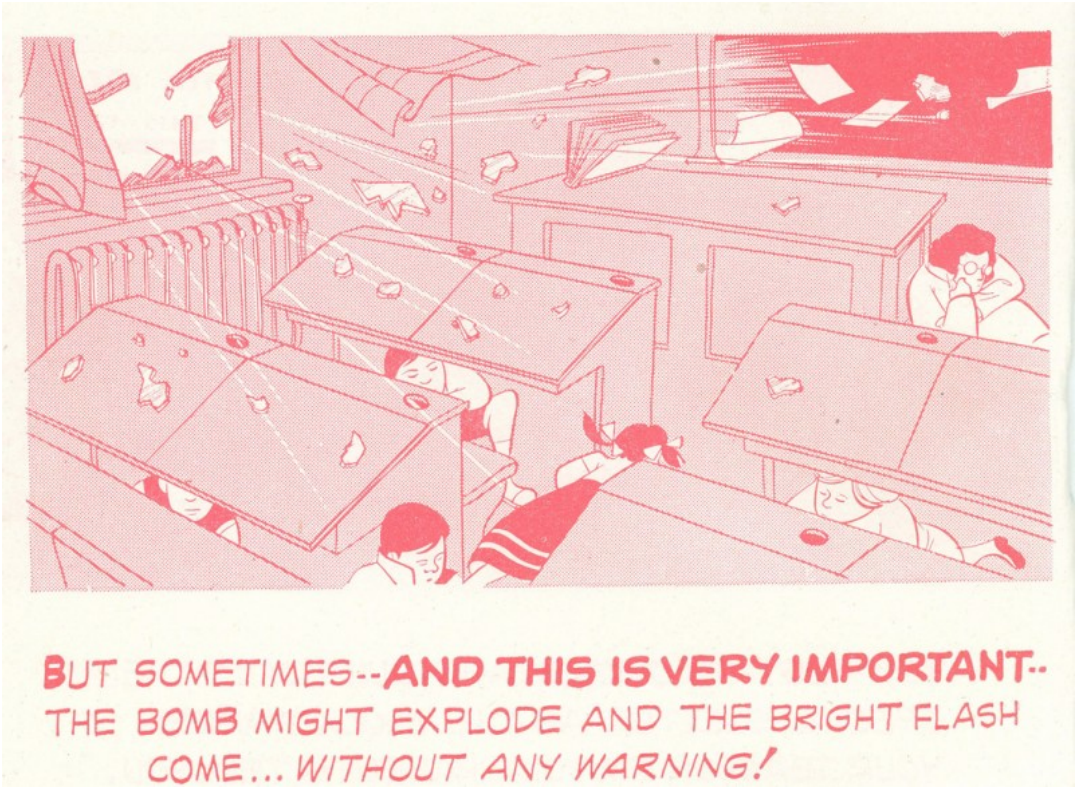

FIGURE 73 *BERT THE TURTLE SAYS DUCK AND COVER*. CIVIL DEFENSE BOOKLET FOR CHILDREN, 1951.

Fiction provided the ideal space for post-traumatic anxieties to be exercised and exorcised thus propelling the proliferation of dystopian films and literature. The nuclear paranoia inspired an entirely new literary and cinematic genre, "Nuclear Apocalyptic" speculative fiction, entering the collective consciousness through such memorable films as *Dr Strangelove* (1964), or *The Day the Earth Stood Still* (1951).[287] Perhaps a response to Bert the Turtle cartoons, the *Tom & Jerry* tragicomic episode *The Missing Mouse* (1953), presented the relentless cat torn between fear and aggression as he chases an explosive white mouse, due to the contradictory warnings played on the radio. "The white mouse will not explode", eventually reassures the radio, but the episode concludes with a battered Tom saying in a distorted voice "do not believe it". Several TV programs were produced in the U.S. with the technical information and advice of the Civil Defence, such as the episode "Atomic Attack" of the series *Motorola TV Hour* (1955). The episode combined the teaching of emergency procedures with Hollywood style drama and bittersweet finale, where

[287] Kenneth Rose, *One Nation Underground: The Fallout Shelter in American Culture* (New York: NYU Press, 2001). *Dr. Strangelove or: how I learned to stop worrying and love the bomb,* directed by Stanley Kubrik (Great Britain: Columbia Pictures, 1964). Film. *The day the Earth stood still*, directed by Robert Wise (United States: Twentieth Century-Fox Film Corporation, 1951). Film

an American mother says to her daughter: "I promise, we will win!". [288] Some other productions where committed to realism, such as the episode *"*Flash of Darkness" of the series *The Medic,* a sort of "edutainment" programme about doctors that imagines a nuclear strike in Los Angeles.[289] These "what-if" scenarios featured dramatized versions of Nuclear emergency procedures in an emotionally charged fashion mimicking the plethora of safety films, leaflets and booklets.[290] Through these artefacts, the aesthetic of risk began to permeate both official propaganda and cultural production. It is on such examples that the following paragraphs will concentrate.

The booklet *Advising the Householder on Protection against Nuclear Attack* (1963),[291] (Figure 74, Figure 75) produced by the British Civil Defence, guided the reader through the process of building a nuclear fallout shelter and the actions required following a siren going off. The layout of the booklet was particularly telling. Small headlines and illustrations framed each situation (or scenario) with small human figures resembling demonstrative and emotionless pictograms. The red colour used in these illustrations matched the red bricks used for building in the UK giving a sense of familiarity to scenes. The language was also "to the point", conveying seemingly factual information with no dramatic headlines nor alarmist tones. The overall effect must have attempted to be quite encouraging: Figure 74, for example, presents survival as a likely possibility and suggests readers to welcome pets and neighbours in need of shelter. The design of step-by-step illustrated guidelines in this booklet focused on an instructional aesthetic with an impartial, anti-emotive tone to avoid panic. However, this no-fuss instructional approach also carried out an inconsistent message: in case of a nuclear attack, one must expect to be self-reliant.

Nuclear fallout booklets, effectively inherited the anti-alarmist spirit of earlier civilian hand books, including the ones produced as a part of the Safety First movement. How-to guides were a popular genre at the beginning of the 20th-century: (see Chapter 3) tips about avoiding accidents in the street, at home or work featured in governmental initiatives of public information, but also private companies and associations. Even the insurance sector and cigarette companies were keen producers of survival instructions. Nuclear fallout

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[288] "Atomic Attack", *The Motorola Television Hour,* directed by Ralph Nelson. (USA: Office of Civil Defense and American Broadcasting Company (ABC),1954). TV Episode.
[289] "Flash of Darkness", *The Medic,* directed by John Meredyth Lucas. (USA: Medic Productions and National Broadcasting Company (NBC), 1955). TV Episode.
[290] In a way, Peter Watkins's docudrama *The War Game* (1965) had a similar combination of drama and realism, however, whilst these examples dwelled uncritically in destructiveness of nuclear weapons, *The War Game* put them in a political and historical context. For a discussion of this film see: Cavallo, Francesca. "Rehearsing Disaster." MA thesis. The London Consortium. 2011.
[291] Great Britain. Home Office. *Advising the Householder on Protection against Nuclear Attack.* 1963.

booklets appropriated the same style and adapted it to the nuclear threat, substituting seasoned techniques with what authorities believed to be the best strategies.

The structure was always quite standard in these booklets. Beginning with a description of the risk and a statement of intent, they went through step-by-step instructions of emergency procedures divided in a before, during and after the event scenarios, ending with a conclusive check list. From a design perspective, this formula was practical and understandable, and served as a model for many booklets to follow, including the controversial *Protect and Survive* (1976,1980),[292] but as a political operation it was controversial.

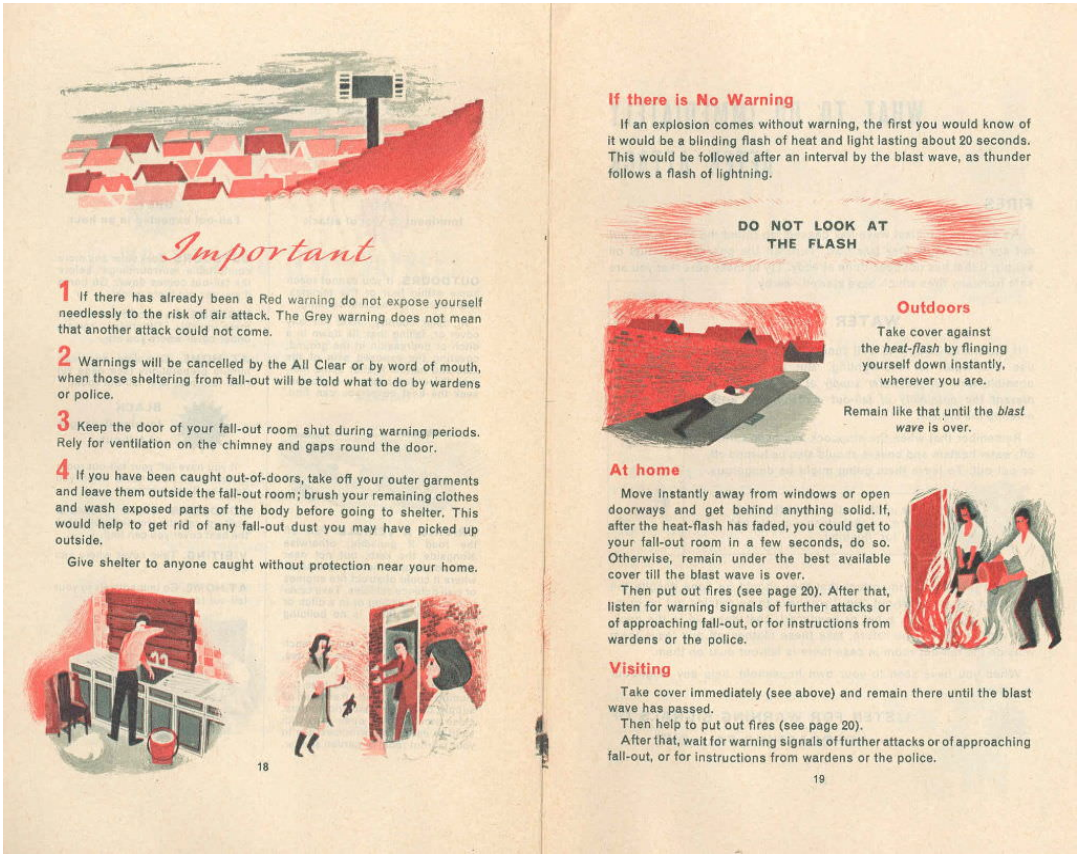

FIGURE 74 *ADVISING THE HOUSEHOLDER ON PROTECTION AGAINST NUCLEAR ATTACK*, 1963. CIVIL DEFENCE HANDBOOK NO.10 UK.

Fallout manuals had little evidence supporting their advice. The population was recalcitrant to execute the instructions: many did not believe that anyone could actually survive a nuclear

[292] Great Britain. Home Office. *Protect and Survive.* 1976.

attack and only a few actually built a shelter.[293] As these fallout booklets entered household bookshelves, images from the real nuclear disaster in Hiroshima had become part of the collective imagination of western countries.[294] The reassuring advice of the booklets contrasted with these atrocious images, presenting a sanitised version of the real disaster.

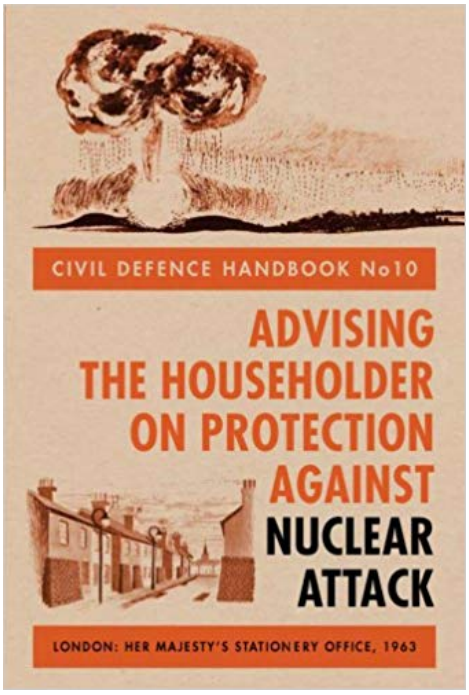

FIGURE 75 *ADVISING THE HOUSEHOLDER ON PROTECTION AGAINST NUCLEAR ATTACK,* 1963. CIVIL DEFENCE HANDBOOK NO.10 UK 1963. BOOK FRONT COVER.

Many identified these booklets with Cold War propaganda, and perhaps unsurprisingly several alternative manuals were also produced, criticising authorities for being the actual cause of the risks against which they attempted to shield the people. These guides incorporated instructions and adopted the same "how-to" formula to subvert their meaning.

In *The Intelligent Woman Guide to Atomic Radiation* (1964) (Figure 76) author and screenwriter Margot Bennett, explained in "plain English" the dangers and advantages of nuclear energy, touching on issues such as pollution and health. Bennet states in the introduction: "the only real protection is to understand what is happening, to form your own judgement, to decide if you are satisfied with the position. If you are not, you are entitled to

[293] Sarah A. Lichtman, "Do-It-Yourself security: Safety, gender, and the home fallout shelter in cold war America," *Journal of Design History,* 19.1 (2006): 39-55.
[294] Disturbing images of the devastation caused by the bomb were not circulated in Japan until thirty years after the explosion, but those images were shown in American television. See Peter B. Hales, "The atomic sublime," *American Studies*, 32.1 (1991): 5-31.

say so. Informed public opinion is infectious, even to government". [295] In a similar spirit, activists a few year later produced *Protest and Survive* (1980), whose title mocked the controversial Civil Defence guide *Protect and Survive*. Rather than "pointless" survival instructions, this alternative guide offered "scientific facts" about radiation.[296]

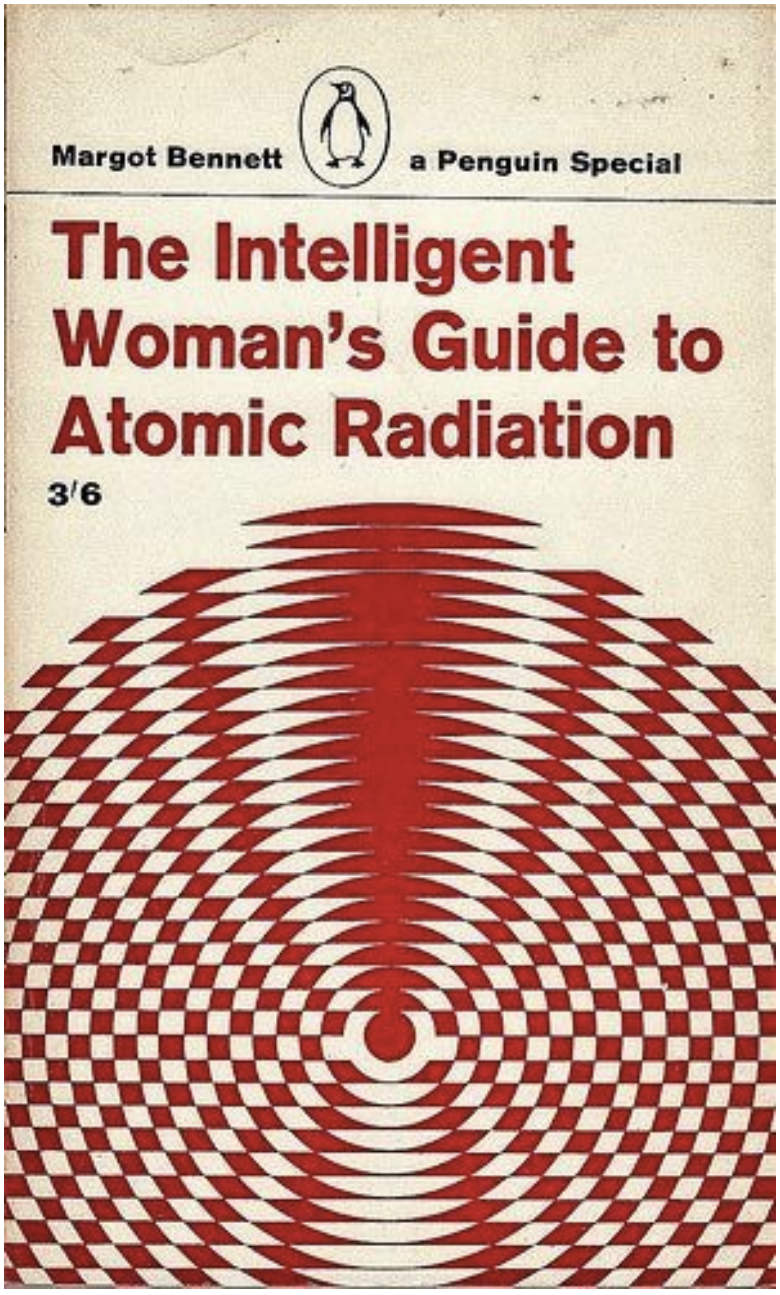

FIGURE 76 MARGOT BENNETT, *THE INTELLIGENT WOMAN'S GUIDE TO ATOMIC RADIATION,* 1968.

[295] Margot Bennett, *The Intelligent Woman's Guide to Atomic Radiation* (Baltimore: Penguin, 1964), 14.
[296] Edward Palmer Thompson and Campaign for Nuclear Disarmament, *Protest and Survive.* (London: Campaign for Nuclear Disarmament: Bertrand Russell Peace Foundation, 1980).

A few years later, *Target London* (1984) by Peter Kennard (mentioned also in chapters 2 and 4), was a set of posters designed for a mass education campaign commissioned by the Greater London council to promote the creation of a nuclear free zone in London.[297] The text incorporated excerpts from *Protect and Survive*, but dramatic photographs, instead of the usual vignettes conveyed a sense of danger. Subverting the protective intent of the official booklet, the posters suggested that nuclear deterrence was a cause, and not a consequence, of global endangerment. Kennard's process of juxtaposition and collage retraces and reaffirms the disruptive potential of black and white collage championed by John Heartfield (1891–1968) in Nazi Germany, witnessed in soviet posters by Alexander Zhitomirsky (1881–1937), and to a certain extent also in Abram Games posters (see Chapter 2). Black and white original footage of wounded and burned bodies are overlapped with graphic elements in a shocking style that leaves little room for interpretation.

Raymond Briggs, on the other hand, a former children books author, was slightly subtler in his message. His graphic novel *When the Wind Blows* (1982), turned by Jimmy Murakami into the successful animation with the same name, is particularly evocative of both the children universe and the instructional booklet, disrupting them both.[298] An atomic fallout guide features several times in the novel, as James, a WWII veteran, patiently follows its instructions and builds his shelter with a mix of hope and nostalgia.[299] The novel, however, develops were the booklet ends. As James is torn between complacency and scepticism, the explosion arrives with a white blast, fulfilling the anticipated radio massage. All happens as advised in the booklet and the two protagonists promptly find shelter as soon as they hear the sound of the sirens. Soon after, however, their decay slowly builds up through several pages demonstrating the impossibility to survive after the explosion.

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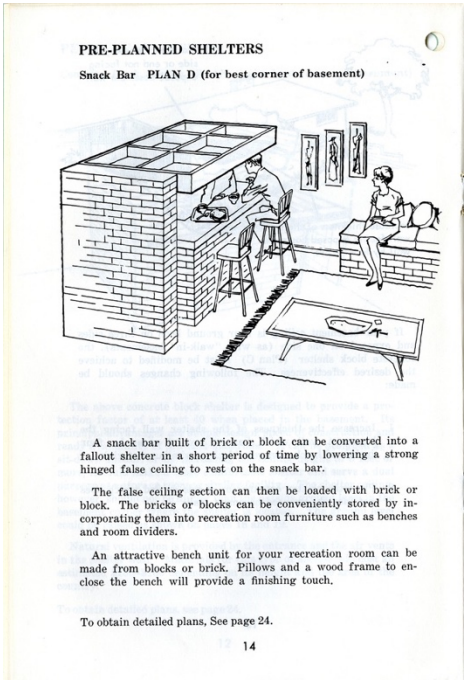
[297] This work was exhibited in the exhibition Risk, at the Turner Contemporary Gallery. See also Chapter 2; Peter Kennard, *Target London,* set of 18 posters, 1985.
[298] Raymond Briggs, *When the Wind Blows* (London: Hamilton,1982).
[299] The protagonist remembers his youth, when he used to spend the evenings reading in candle light under an Anderson shelter. Anderson shelters were distributed freely to the British population in the build-up to WWII.



PRE-PLANNED SHELTERS

Snack Bar PLAN D (for best corner of basement)

A snack bar built of brick or block can be converted into a fallout shelter in a short period of time by lowering a strong hinged false ceiling to rest on the snack bar.

The false ceiling section can then be loaded with brick or block. The bricks or blocks can be conveniently stored by incorporating them into recreation room furniture such as benches and room dividers.

An attractive bench unit for your recreation room can be made from blocks or brick. Pillows and a wood frame to enclose the bench will provide a finishing touch.

To obtain detailed plans, See page 24.

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FIGURE 77 *FALLOUT PROTECTION FOR HOMES WITH BASEMENTS*. WASHINGTON, D.C.: OFFICE OF CIVIL DEFENSE, 1967.

On a rhetorical level these works' aim was exactly the opposite of reassurance, ultimately questioning the source of the advice and the accuracy of its methods. In 1983, after the Cuban Missiles Crisis and before Chernobyl, American artist Michael Smith, went as far as executing the instructions in a Civil Defense pamphlet (Figure 77) and build a shelter in an art gallery.[300] The installation *Governmentally Approved Fallout Shelter and Snack Bar* (1983) (Figure 78, Figure 79, Figure 80), presented at Castelli Gallery in New York, was a commentary on an already tired public reception of nuclear protection advice. The artwork is the creation of Smith's alter-ego Mike, a character the artist adopted throughout his career to encapsulate the American "model citizen". Mike, as expected, sensibly follows the government advice and upgrades his rec-room into a bunker, where he can serve drinks to his friends. Smith also re-drew the booklet with Mike as the protagonist and created an arcade game in collaboration with computer graphics designer Dov Jacobson, and programmer Reza Keshavarz. In this game, (Figure 78, Figure 79) the player is caught up in a pointless ritual, as an astonishingly slow digital version of Mike is squeezed in the perennial moment between the alarm and the explosion and cyclically fails to carry a brick to his designated protective shelter.

[300] US, Office of Civil Defense, *Fallout Protection for Homes with Basements* (Washington, D.C.:, 1967). Updated and re-issued in 1980.

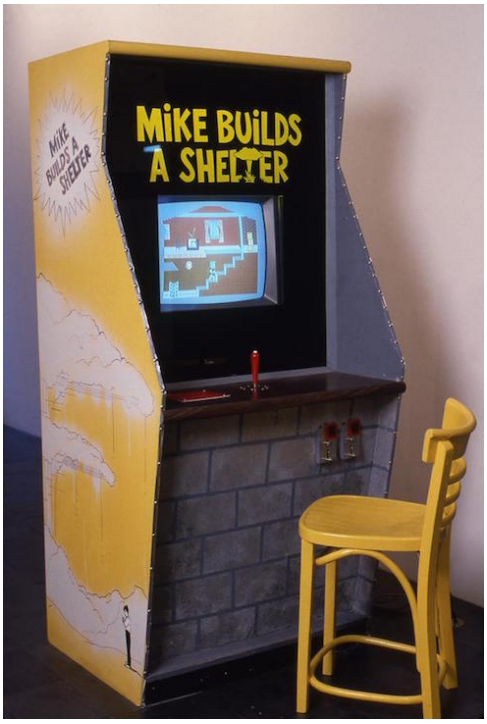

FIGURE 78 MICHAEL SMITH, *MIKE BUILDS A SHELTER*. ARCADE GAME. 1983 PART OF THE INSTALLATION *GOVERNMENT APPROVED HOME FALLOUT SHELTER SNACK BAR*.

The installation, as seen at Frieze Art Fair in London in 2014, works like a time capsule of the 1980s Cold War cliché, a funny monument to old time paranoia. However, at the time it might have been perceived as more politically charged, as when several artists, curators, and critics protested against Regan's aggressive international politics.[301] His use of computer gaming as a preparedness exercise, for example, is very potent (and prescient) if we consider that since the 1960's video gaming was used in military training to simulate situations of conflict, a role that has now been taken by VR technologies.[302] Most remarkably, avant-garde film director Harun Farocki made this tension the focus of his seminal work *Serious Games I–IV* (2009–2010).[303]

Nevertheless, by the time Smith used these tropes the official manual had become material for parody, the fallout scare had been already metabolised as an ineffective *cliché*.

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[301] David McCarthy, *American Artists against War, 1935-2010.* (Oakland : University of California Press, 2015).
[302] Roger Smith, "The long history of gaming in military training," *Simulation & Gaming* 41.1 (2010): 6-19.
[303] *Serious Games I–IV,* directed by Harun Farocki (Harun Farocki Filmproduktion, 2009–2010). Video Installation composed of four films: *Serious Games I: Watson is Down.* (2010); *Serious Games II: Three Dead (*2010); Serious Games III: Immersion (2009); *Serious Games IV: A Sun with No Shadow (*2010). See: Thomas Elsaesser, "Simulation and the Labour of Invisibility: Harun Farocki's Life Manuals," *Animation*, 12.3 (2017). 214–229. This work was exhibited in the exhibition Risk, at the Turner Contemporary Gallery. See also Chapter 2.

The imagery of nuclear preparedness is turned into a comic exercise of failure, a deadpan joke that resists any moralism and polemic tone. Smith's message seems more satirical then emancipatory, or perhaps, it is emancipatory in an indirect and satirical way.[304] It shows the frustrations of individuals confronted with decisions that are taken beyond their control, stuck in a state of perennial anticipation that may not change anything. Perhaps this is how the apocalypse really looks like.

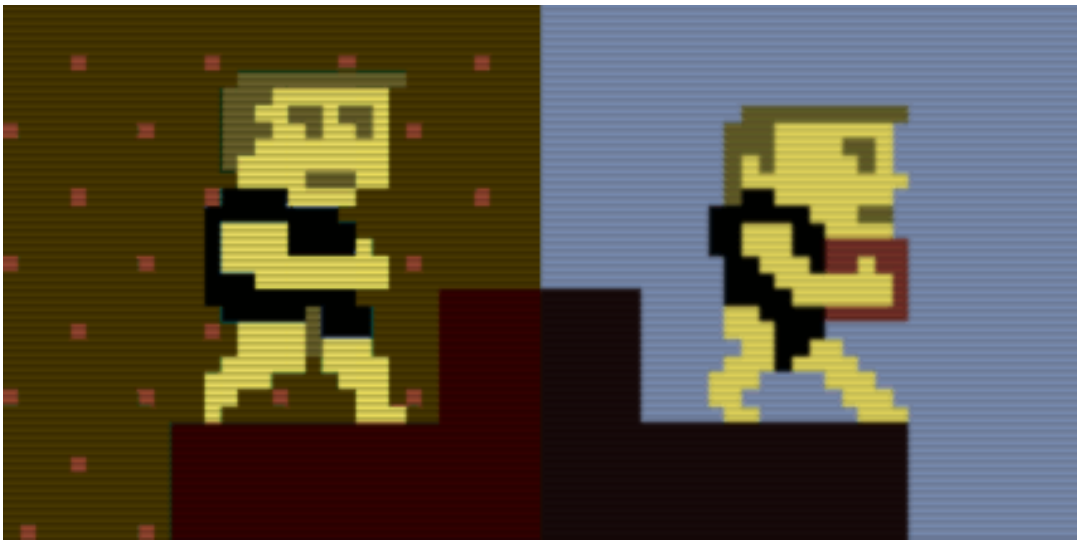

FIGURE 79 MICHAEL SMITH. *MIKE BUILDS A SHELTER.* ARCADE GAME. 1983 (SCREEN SHOT). PART OF THE INSTALLATION GOVERNMENT APPROVED HOME FALLOUT SHELTER SNACK BAR, 1983

[304]Curator Nina Fleshin commented in the exhibition catalogue of *Disarming Images: Art for Nuclear Disarmament:* "While on its own, an artwork might not convert an advocate of deterrence in an advocate for bilateral freeze, or influence political change, it can have a transformative effect on the viewer (…) if an artwork can encourage the viewer to perceive ideas in new fuller ways, particularly ideas which extend beyond aesthetic issues into societal concerns, it will have accomplished a great deal". Quoted in MacCarthy 2015. 116.

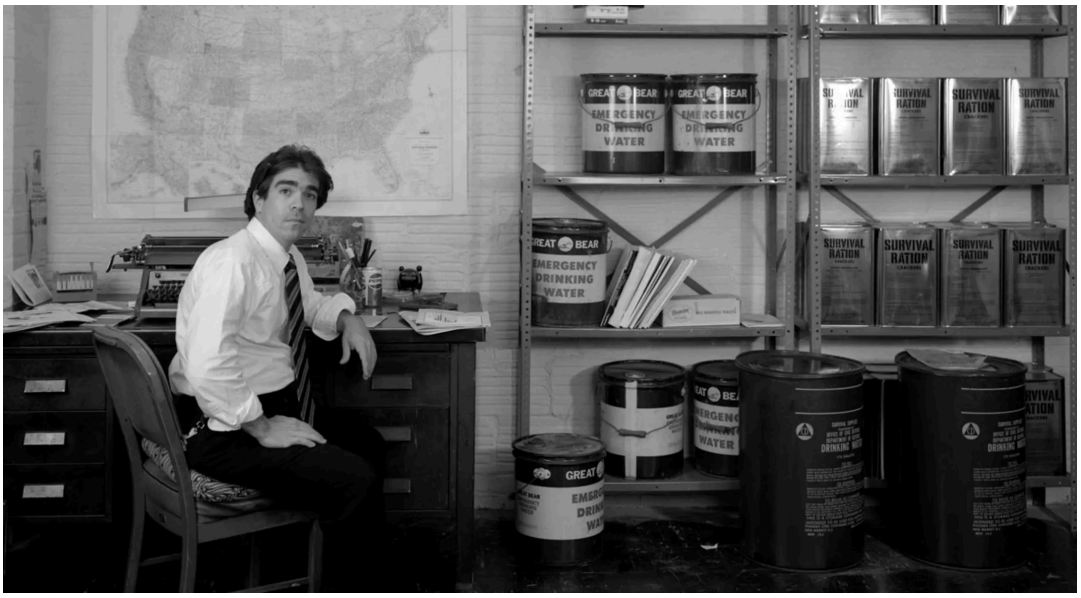

FIGURE 80 MICHAEL SMITH, *GOVERNMENT APPROVED HOME FALLOUT SHELTER SNACK BAR*, 1983

Smith's and the other examples that I have discussed so far, evidence of how civilians responded critically to the Nuclear protection propaganda of the Cold War. Nevertheless, they also demonstrate the popularity of the instructional style, by showing that instructions about how to deal with risk have become a reoccurring behaviour within the cultural realm, including artistic practice. The instructions demonstrating how to survive a nuclear catastrophe, even if it did not save anyone, have been successfully internalised in the collective imagination, becoming the *topoi* of Cold War preparedness: the rehearsals for an event that never happened. Besides, they contributed to promote a do-it-yourself attitude that is evident in the proliferation of other how-to manuals across the cold war up to today. Publications that have appropriated the instructional style but rejected the institutional advice to promote alternative methods of survival and a self- reliant lifestyle.

5.3 Survival as a Life-style

FIGURE 81 "EVERYBODY'S GUIDE TO SURVIVAL". THE OBSERVER 15 SEPTEMBER 1968. TITLE.

If the official and unofficial pamphlets examined in the previous section addressed specific issues such as the nuclear fallout, it was not the content but the style that has been internalised in popular culture. In all sectors of life and expertise survival guides have appeared, as self-published books, magazine articles, even as encyclopaedias proposing how-to techniques for every possible worst case scenario — natural or man-made, global or personal, emotional or financial. Following the advent of civil defence pamphlets, a whole genre of multipurpose survival literature was born, somehow evolving parallel to FEMA's "all-hazard" approach and promoting survival as a life style choice.

"(He) set to find out and, whenever possible, to test out what to do in the hundreds of situations which might threaten your life any day any time." States the The Observer in the 1968 article "Everybody's Guide to Survival", an instructional directory of dangerous situations and how to deal with them (Figure 81, Figure 82). The guide clearly maintains the structure of Civil Defence booklets, but the apocalyptic scenarios were diluted into more mundane situations: fire safety, personal self-defence, car accidents, even James Bond-like situations. "The advice is practical, and in every instance has been put to test by someone",

explains the guide's introduction, followed by a long list of acknowledgments: The Fire Rescue Brigades, the Royal Society for the Prevention of Accidents, a combat school, St John's ambulance, the National Farmers Union and the Boy Scouts.[305] The guide was accompanied by several instructional illustrations by Rodney Shackell, a children books illustrator. The images were linear and straightforward. Devoid of any background and period reminder, actions were turned into instructions to be performed ad infinitum, somewhat of an evolution from the cigarette cards that were described in the third chapter. The text, that in cigarette cards was behind the illustration, was incorporated into the step-by-step instructions, where the reader is constantly and repeatedly addressed with an alliterative "you".

SURVIVAL

continued hitting movements, which will all too often provoke an attack. And keep eyes ahead on road. Pull in and stop as soon as possible.

The brakes fail: Try the handbrake, and, whether it works or not, start engaging lower gears to act as a brake on the engine. On a moderate hill this may be enough. On steep hills, action depends on the potential danger of the situation (traffic heavy – crossroads at the bottom?). At least run a tyre against the edge of the kerb; if a really dangerous situation is looming, run the car side against a wall.

You drive across traffic lights at green at a junction. From the offside another car jumps the lights. You cannot avoid it by braking or accelerating: Avoiding a direct collision is the secret. Steer sharply to left, so as to create a much less violent impact from the offside.

You stop on a level-crossing with a train coming: Depends how close the train is. If there is time, put car in bottom gear and use starter motor to take the car clear in a series of jerks, remembering though to have the handbrake *off*. If the train is bearing down close – forget the car; get out.

You're driving fast when your only passenger, a child, opens the door: Shout a warning. Brake – but *gently* or else door will jerk right open. Wind pressure will help in keeping the door shut.

The steering wheel comes off: Simply – put it back. Slide it onto the end of the steering column. Then brake.

Positions if you are going to crash: If you are wearing a seat belt, withdraw your legs backwards and cover your face with your arms. If you

have no belt, throw yourself sideways below the level of the dashboard. Cover head with your arms.

If a passenger is asleep in the front seat, don't wake him. But if you are wearing a seat belt and he's not throw your left arm across his chest to check his forward movement on impact.

Motorists and the weather: The Scouts' motto applies: 'Be prepared.' Carry essential equipment – a shovel and grit if you are likely to encounter bad snow, and gumboots. Before a long drive try to lie down for an hour; it doesn't matter whether you fall asleep or not. On a tough run, it helps to make a short stop occasionally, take a few minutes 'cat nap' and then get out, breathe in fresh air and jump up and down a few times.

Dense fog: Put lights on, and you've got to keep moving; if it is impossible to see ahead try driving from the

passenger seat (easier to follow the kerb or verge). An alternative is for a passenger (a qualified driver) to steer while you work the other controls.

Snow and ice: The weight of that sack of grit you should be carrying will help by increasing traction over the wheels, even if you don't need to use the grit itself. Use the highest gear possible all the time. You must avoid hitting accelerator hard. With bad patches – and going up hills – build up speed first. Begin a descent as slowly as possible and keep in low gear.

Mud and sand: Similar technique to above – but try not to have to stop.

If you do come to a halt, get out of gear to avoid wheelspin digging car down. To get out of a rut, put any weight you can into the back, and keep driving steadily and slowly backwards and then forwards to elongate the rut. Then run up rear end of rut slightly and drive out forward.

If one wheel becomes stuck in a *ditch* it is equally important not to keep wheels spinning. Technique is to jack up ditched wheel, using anything solid you can find to support the jack. Keep building up under ditched wheel, and alternately jacking up further. Continue until wheels are roughly level.

Water: *To drive through flood*, first check depth. Then use bottom gear, entering water slowly, feet on both clutch and accelerator. Speed throughout should be about walking pace. If the exhaust goes under water, you will have to slip clutch and press hard on accelerator. If you do stick halfway, get out on self-starter (as on rail crossing). It is essential after travelling through water to dry out brakes by gently applying them for a short while as car is moving.

If you have to stop a car *near water*, park parallel to the edge if possible; if not feasible, leave in reverse gear.

If your car does *plunge into deep water*, it will usually end up on its wheels. The killer is panic, which must be avoided at all costs. Technique is simple and tested: if windows are open close them and keep them and the doors shut. Water will start to come up around you. Still, don't panic. You need to wait until the water inside provides a pressure strong enough to open the doors against the pressure outside. Try opening when the water reaches the height of your chin. If it

doesn't work, keep trying. You've quite a lot of time. Once the door starts to give, take a deep breath, duck through door, and breathe out on your way to the surface.

If there are children in the car, lift them so their heads are in the air pocket near the roof. And remember, even if the water covers your mouth and nose before the doors will give (most unlikely) you can still breathe by tilting your head and placing the tip of your nose and mouth against the inside of the roof.

Saving petrol: If you *need* to, keep car in top gear at steady, relatively low speed, avoiding any rapid acceleration. You can coast down long hills, gear lever in neutral and engine off (this can be dangerous, so do so only in case of real need) and then, near bottom, switch on, engage high gear – car will start itself.

WHEN TRAVELLING

Travel sickness: Can hit passengers on the road, sea or in the air whenever repeated changes of speed and direction overstimulate the organs of balance in the ear. Even the best travellers may be made sick if the movement is harsh and frequent enough.

Aboard ship get as near to the ship's centre of gravity as possible, and in rough seas lie down and try to sleep. Alternatively, concentrating on playing cards or reading may help.

In a car sit in front and watch the road to anticipate the car's movements.

You *should* eat light food or, if that's uncomfortable, suck boiled sweets. A mistake, though, to have too many drinks of any kind.

When flying: Take a lesson from the pilot, and keep your seat belt fastened all the time, as he does. In any sudden movement of the plane, it could save you from hitting the roof or crashing into the seat in front.

The safest place to sit is near an emergency exit.

For emergency landings make sure your seat is in the fully upright position. If your seat is facing forward, as most are: bend forward with one arm across knees. Place pillow on lap and hold head on pillow with other arm. Have legs

forward and braced. If you are too tall to bend fully forward, rest folded arms on backrest of seat in front, cradling the head. You should also loosen neckwear, take off glasses and high-heel shoes, remove dentures and empty pockets of sharp objects.

In backward-facing seats, place hands behind head and lean back.

Most airlines use paraffin fuel but a few – including Air Canada, Japan Airlines and Sabena (on non-London flights) – use another fuel, JP4. Some claim that JP4 is a more volatile fuel in crash situations, though users defend it as completely safe.

In lifts: If you are stranded between floors in a modern lift, best accept the fact that you are completely helpless. All you can do is press the alarm. Shouting will only make you hoarse and raise panic.

If the lift goes crashing down (it should never happen) don't lie on the floor or curl into a ball – this will simply spread the shock through your body. If you can, get your feet off the floor (hanging from ledge if there is one); or lengthen odds in your favour by jumping up and down (you *may* be off the floor at moment of impact). Otherwise, as for falls: try to relax, slacken legs.

On trains: It is safest to sit near the back or in the middle (modern trains are less likely to telescope than older ones). If you feel the train is going to come off the track, throw yourself on the floor to get away from windows, and/*continued*

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FIGURE 82 "EVERYBODY'S GUIDE TO SURVIVAL." THE OBSERVER 15 SEPTEMBER 1968. PAG.29

[305] Eric Clark, "Everybody's Guide to Survival," *The Observer*, 15 September 1968, p. 24-34.

The article reflects a broader awareness of everyday risks at the time, anticipating how the word survival came to be associated with the most mundane of circumstances in the years that followed. Moreover, it enables us to see how instructions for survival had not just permeated the visual culture but were ultimately forging a new survivalist lifestyle in the 1970s.

In 1975, right wing sympathiser Kurt Saxon started self-publishing *The Survivor* (Figure 83), a magazine declaring that: "The Survivor is the first publication preparing its readers to the total collapse of our economy and social system".[306] Saxon was disillusioned with American politics and advocated a "do it yourself" attitude. His pamphlets contain reprints of old guide books and technical manuals as much as his own writing and advice: from money saving to surviving a nuclear winter, from growing earthworms to burglar proofing one's house. Saxon was also an expert in fire weapons and the publisher of another independent pamphlet, *The Poor Man James Bond* (1968) (Figure 84), which contained information about making explosives and other dangerous activities, all in the name of self-protection.[307] This book borrowed its title from Benjamin Franklin famous *Poor Richard's Almanack* (1758-1773) which in the 18h century amused American readers with printouts of meteorological and astronomical information as much as the recording of memorable events.[308] Inspired by this old fashion publication, Saxon transposed it into the sexy universe of the masculine risk-taker stereotype. The self-proclaimed inventor of the word "survivalist", Saxon also insisted on the urgency to survive as heroes and not just "sit and watch" like his contemporary pacifists would do,

> My definition of a Survivalist is a self-reliant person who trusts himself and his abilities more than he trusts the Establishment. Insofar as the Establishment is deteriorating, the Survivalist prepares to leave it.[309]

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[306] Kurt Saxon, *The Survivor*, (Harrison, AR: Atlan Formularies, 1987) Re-print.
[307] Kurt Saxon, *The Poor Man's James Bond* (El Dorado, AR: Desert Publications, 1991) Re-print.
[308] Benjamin Franklin, *Poor Richard's Almanack: Being the Almanacks of 1733, 1749, 1756, 1757, 1758, First Written under the Name of Richard Saunders* (New York: Rimington & Hooper, 1928). Remarkably, Saxon might have known also Franklin's own guide about choosing a mistress. See Benjamin Franklin and Ruth E. Adomeit, *A Letter from Benjamin Franklin to a Young Friend on the Choice of a Mistress: Philadelphia, P.a., 1745*, (Valparaiso, Ind: Sandlin's Books & Bindery, Inc, 1993).
[309] Kurt Saxon, "What Is a Survivalist." (printed by the author, 1980). *Textfiles.com.* Accessed 20 January 2020, http://www. textfiles. com/survival/whatsurv (1980).

FIGURE 83 KURT SAXON, *THE SURVIVOR*. HARRISON, 1987. REPRINT.

The Survivor represents the disobedient counterpart of civil defence propaganda. Like Civil Defence booklets, it enjoyed an abundance of illustrations and advise as well as very clear, understandable language that, according to its author, was put to the service of the greater good. It responded to the Cold War craze for human annihilation with a transgressive attitude that merged the instructional style with the recycling of survivalist skills a la Robinson Crusoe. Combining vernacular knowledge with civil defence tips, this sort of book was packaged around the figure of the supposedly autobiographical author, whose practical experience and dangerous life style, made him a role model for readers and followers alike. This strange mix of civil defence manual and old-style guide book, tapped into the fascination towards weapons and heroism of disillusioned Vietnam Veterans, morphing into the formula for numerous survival guides produced during the 70s and 80s.

If *The Survivor* circulated mainly in underground circles and right wing counterculture milieus, other publications reached mainstream attention by preparing for apocalyptic visions of different kinds and scales. The prophecy of an "ecocide" generated several manuals for "retreaters" advocating a life off-the-grid: these ranged from ecological

sympathisers such as *Survival with Style*, (Figure 85)[310] to the survivalists' guides suggesting to relocate to the countryside in order to escape the corruption and violence of society.[311]

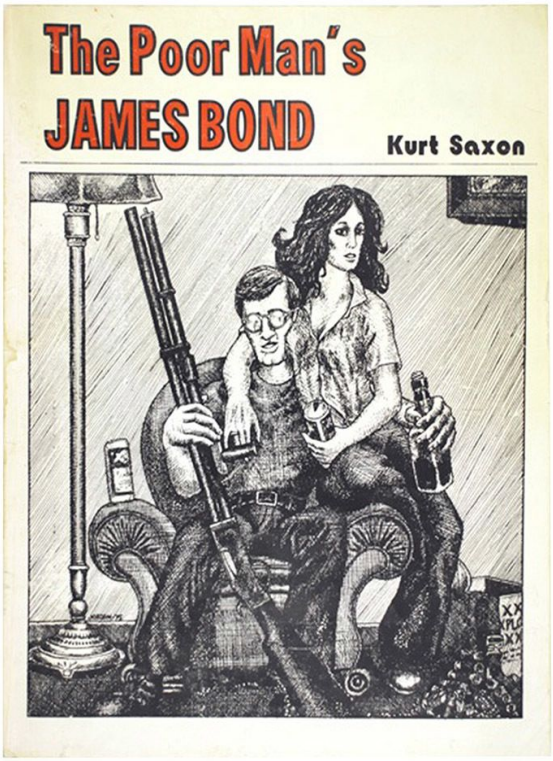

FIGURE 84 S KURT SAXON. *THE POOR MAN'S JAMES BOND*. 1991. (RE-PRINT).

In the 1980's John A. Pugsley's book, *The Alpha Strategy: the Ultimate plan to Financial Self Defence* (1980), became a bestseller by suggesting stocking up on food and household goods as a hedge against inflation (Figure 87).[312] In 1999 it was the time of the Y2K (also known as the Millennium bug) an "end of millennium" disaster that worried both high flying managers and fringe religious groups, who saw it as the fulfilment of prophecies of the end

[310] Bradford Angier, *Survival with Style: In Trouble or in Fun ... How to Keep Body and Soul Together in the Wilderness* (New York: Vintage Books, 1974). See also Clifton Fadiman and Jean White, *Ecocide: And Thoughts Toward Survival* (New York: Center for the Study of Democratic Institutions, 1971).
[311] See: Don Stephens and Barbie Stephens, *The Survivor's Primer & Up-Dated Retreater's Bibliography* (Spokane: Stephens, 1976); Ragnar Benson, *The Survival Retreat: A Total Plan for Retreat Defense* (Boulder, Colorado: Paladin Press, 1983).
[312] John A. Pugsley, *The Alpha Strategy: The Ultimate Plan of Financial Self-Defense* (Los Angeles: Stratford Press, 1981).

of the world. With the arrival of the new millennium, the bug, which would have supposedly crashed all computers, never materialised. However, it had already claimed an abundance of scare-mongering media coverage and conspicuous investment in contingency planning across several private and public institutions. A whole series of ad hoc manuals were published. *Boston on Y2K* (1998) by Kenneth W. Royce, and Mike Oehler's *The Hippy Survival Guide to Y2K (1999)* predicted the total collapse of society due to the failure of electricity grids, public utilities, and food shortages.[313] After 9/11, as could be expected, several books quickly appeared addressing terrorism, such us *Life after Terrorism* by Bruce D. Clayton, a former bodyguard trained in Israel, published a mere six months after the event (Figure 86). [314] More recently, with climate change and extinction featuring prominently in political and public arenas, a whole new generation of survival manuals are being published.[315]

The proliferation of these survival guides might serve as a barometer for socio-cultural and historical awareness regarding emergencies and imagined threats, as well as providing an instructive perspective for exploring the relations between the guides and human resilience. [316]This, however, is not the main concern of the current account, which is instead the survival manual's rhetorical style, one that consists of guidance and instructions as tools for managing risk. To this extent the popularity and diversity of survival manuals demonstrate that the instructional style succeeded as a formula for knowledge transfer regardless of its content. Exploiting what in the first chapter I have called the "plotting potential" of risk, manuals can quickly adapt to whichever situation one may perceive to be the worst case scenario, becoming ideal vehicle for any sort of fantasies — be they adventurous or apocalyptic.[317] Moreover, as distinguishing between real and imagined risks is not an easy feat, the formula of survival handbooks enables for an original reorganization of factual and fictional information. Whilst imagination can run far away in imagining all possible worst case scenarios, the instructional brings them into a tangible, reproducible dimension. Moreover, the instructional does not dissipate the need for adventure and risk taking that once was symbolised by the rebellious romantic mind, nor does it do away with

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[313] For a general account of Y2K see: Nick Pidgeon, Roger E. Kasperson and Paul Slovic, *The social amplification of risk* (Cambridge University Press, 2003). For guide books see: Mike Oehler, *The Hippy Survival Guide to Y2k* (Sandpoint, Idaho: Keokee Co. Pub, 1999); Kenneth W. Royce, *Boston on Surviving Y2k: And Other Lovely Disasters* (Ignacio, CO: Javelin Press, 1998).
[314] Bruce D. Clayton, *Life After Terrorism: What You Need to Know to Survive in Today's World*. (Boulder, Colo: Paladin Press, 2002).
[315] David Wallace-Wells, *The Uninhabitable Earth: Life After Warming* (New York : Tim Duggan Books, 2019). Extinction Rebellion, *This Is Not a Drill : the Extinction Rebellion Handbook* (Penguin Books, Limited, 2010). Annalee Newitz, *Scatter, Adapt, and Remember* (Toronto : Penguin, 2014).
[316] This will be the object of my future research.
[317] See Chapter 1 paragraph 1.4.

the apocalyptic fantasies of the Judo-Christian traditions. Instead, it frames them with a risk management outlook; it makes them possible by turning fears and fantasies into how-to guides that impart an important lesson. To be able to take a risk one must be aware of how to deal with it, be it the apocalypse, a financial crash, a corrupted society, pollution, or any thrilling experience one may decide to take.

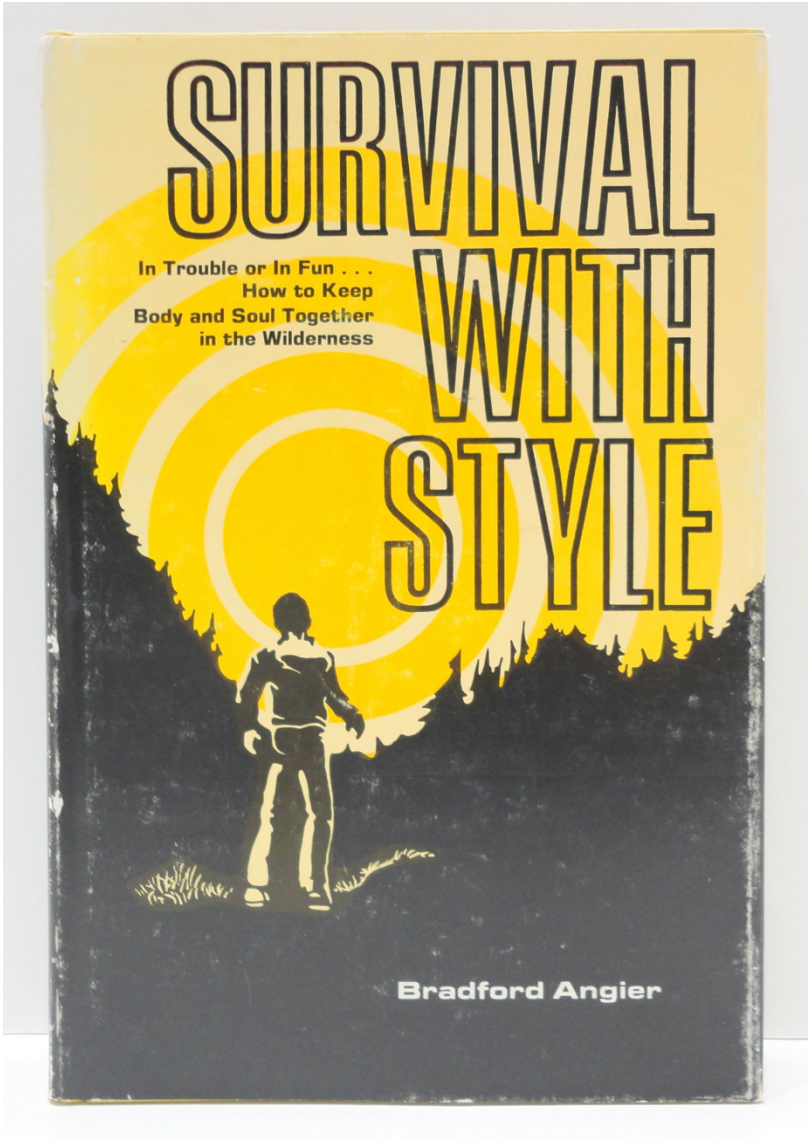
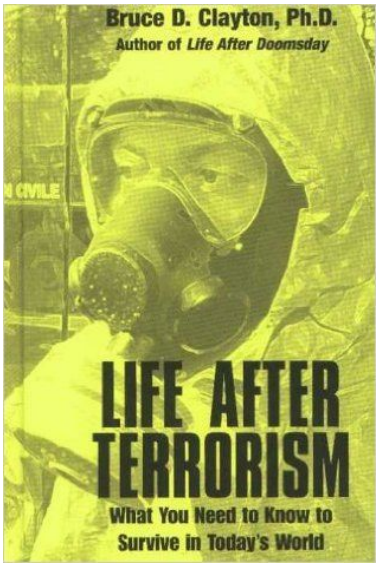


FIGURE 85 BRADFORD ANGIER, *SURVIVAL WITH STYLE*, 1974.



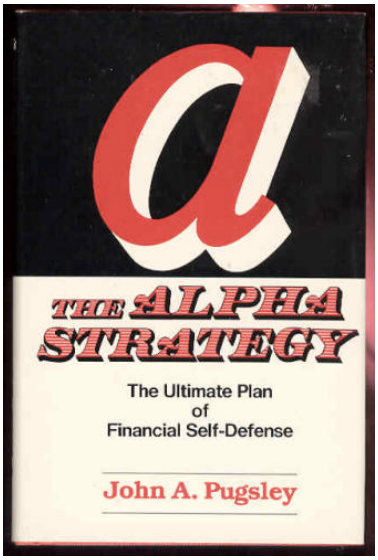


FIGURE 86 BRUCE D. CLAYTON, *LIFE AFTER TERRORISM: WHAT YOU NEED TO KNOW TO SURVIVE IN TODAY'S WORLD*, 2002.

FIGURE 87 JOHN A. PUGSLEY, *THE ALPHA STRATEGY: THE ULTIMATE PLAN OF FINANCIAL SELF-DEFENSE*,1981.

By tapping into anxieties regarding the future as much as the attraction to adventure, weapons, or heroism, *survival* guides have also created a "new modern survivor", or *survivalist.* [318] This figure, has worldviews and lifestyle choices based on the imminence of the worst case scenario, and is modelled around real and fictional tales of human endurance and their protagonists. Survivalists are, for example, doubtlessly indebted to a classic tale of adventure such as Robinson Crusoe, (1791). A brief discussion of this book will help us to further unpack the genealogy of survival manuals and to investigate their rhetorics.

The character of Crusoe incarnates the epitome of the resilient man and is somewhat of a model for modern day survivalists. Overcoming his despair after a shipwreck, Crusoe rescues tools from his sinking ship, settles near a cave and gradually builds a self-sustained life: hunting, fishing, growing rice and barley, raising goats, and making pottery.[319] He endures shipwrecks, cannibalism and isolation, but always finds a way to survive. The skills that Crusoe has are what survivalist want to have and imitate. Like Crusoe, they want to self-sustain, stocking weapons to prepare for social collapse and retreating from the corruption of society. Even Hollywood blockbusters seem to replicate the same parable, as in the recent

[318] Kurt Saxon, "What Is a Survivalist."
[319] Daniel Defoe, *Robinson Crusoe and the Further Adventures of Robinson Crusoe*, (Bloomsbury Publishing, 2016), http://www.myilibrary.com?id=851855.

movie *The Martian* (2015), which practically transposes the same plot onto the surface of Mars.[320]

Other similarities can be found in the deliberate confusion of true facts with fiction. Robinson Crusoe is a fictional autobiography, where Daniel Defoe (1660 -1731) combined various historical sources and real travel diaries into a "made up" character.[321] Defoe was not new to such fictional "accounts" of real events, as he had adopted the same device in the *Journal of the Plague Year of 1722*, a book that was long mistaken for a genuine witness account.[322]Often written in the first person, survival manuals also cultivate a similar overlap of reality with fiction, often relying on an autobiographical narration to frame the information they contain as the consequence of the authors experiences of real events. Survivalist writers advertise themselves as travel experts, army officials, spies, or retreaters, who are living in hidden locations and are expert in bush craft, just like a modern day Robinson Crusoe. However, it is not always clear where the biography ends and the myth begins. The authors' biography gives authority to the books and validates their message to the reader, who may or may not want to assess their veracity.

The moralist undertone of a book such as *Robinson Crusoe* is also paralleled in survivalist guides, where detailed descriptions and practical suggestions mask a strong moral message about a corrupt society. Crusoe's moral undertone and style was highly influenced by the Christian puritan guidebook tradition, whereby the story of survival served the protagonist's moral redemption. [323] Robinson Crusoe was also a model for Jean-Jacques Rousseau's *Emile,* (1762) were it features as the only book the young Emile is allowed to read before the age of twelve. Rousseau wants Emile to identify himself with Crusoe so he can learn to rely on himself for all of his needs; a salvific disaster effects the underlining importance of difficulties as means for self-improvement for the young protagonist. In this sense, not only does Robinson Crusoe notoriously mark the emergence of realistic fiction as genre, but could also be considered a proto survival manual.

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[320] *The Martian*, directed by Ridley Scott (Twentieth Century Fox, 2015). Film
[321] Tim Severin, *In search of Robinson Crusoe*, (New York: Basic Books, 2002).
[322] The *Journal of the Plague Year of 1722* has recently been identified as "the first journalistic narrative of risk". Gaspar Mairal, "Narratives of risk." *Journal of Risk Research,* 11.1-2 (2008): 41-54. See also Adam Burgess, "Environmental risk narratives in historical perspective: from early warnings to 'risk society' blame", *Journal of Risk Research*, 22.9 (2019),1128-1142.
[323] J. Paul Hunter, *The Reluctant Pilgrim: Defoe's Emblematic Method and Quest for Form in Robinson Crusoe* (Baltimore, Md: Johns Hopkins Press, 1996). There is clearly much more to say from a postcolonial perspective about the book's moral message, but that is beyond the scope of this research, see instead: Helen Tiffin, "Post-colonial literatures and counter-discourse." *Kunapipi* 9.3 (1987): 4.

Despite encapsulating the quintessential inspiration of for "the survivor" in western literature, the character of Crusoe has an essential difference from the 1970s and 80s survivor (or survivalist). His knowledge is an improvised response to an unexpected, extreme condition and most of what he learns, he does so from his own trials and errors. Modern day survivalists, by contrast, live in a very different condition. Unlike Crusoe, a survivalist is a real person who lives in a state of constant anticipation for something the he has never experienced, perhaps only ever mediated: by books, news, internet, or fiction. A survivalist does not embrace improvisation, but rather fights against it by training and preparing for any sort of disaster. He lives in the future and the apocalypse is for him an "immanent" presence to be rehearsed and exercised in the every-day,-but the distance between the instruction and the "real" experience remains insurmountable.

It is in this contrast between the literary figure and the lived experience, or between imminence and immanence, that we should understand the success of survival manuals as genre. "Fictions can degenerate into myths whenever they are not consciously held to be fictive" warned Literary theorist Frank Kermode. "The end may not be imminent, but it is immanent", he wrote, meaning that the apocalypse is not a transcendental event, but it exists and remains *within*, as part of life.[324] He explained, in his book about the apocalypse in fiction, that the persistence of myths of the end derive from our need as humans, to structure our very existence (and our fictions) through narratives with beginnings, intervals and ends. The end, he wrote, helps us give meaning to the interval that we are in, which is our life. When the end does not arrive, a new prediction arises. The apocalypse remains as an immanent fiction even if it has never happened. It informs our experience of the world, and someone (such as the medieval *stylites* or contemporary preppers) may even embrace it as a life-changing inspiration.

Nor fiction, nor properly factual, the survival manual is a hybrid genre but it has something quite unique in the modalities through which the knowledge is produced and transferred. The manual presents itself as the recipient of expert knowledge (that is, a knowledge that comes from direct experience and embodied practise) yet aliments literary aspirations. Through survival manuals self-proclaimed travellers, army officials, spies, retreaters, gun enthusiasts share their knowledge and expertise with their peers and

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[324] Frank Kermode, *The Sense of an Ending: Studies in the Theory of Fiction* (Oxford: Oxford University Press, 2000), 101. First Ed. 1967. For further discussion on immanence see Gilles Deleuze, "Immanence: A Life..." *Theory, Culture & Society* 14.2 (1997): 3-7. Deleuze reapprised Spinoza's concept of "Deus sive Natura" ("God or Nature"), asserting that there is no transcendent principle or external cause to the world, and that the process of life production is contained in life itself.

colleagues, giving them the tricks of the profession. Presented as the tools necessary for overcoming difficult times, these survival techniques are instead life style tips for the present. The reader may not experience such worst-case scenarios in the real life, yet can project him or herself in all imaginable dangerous situations and survive as the hero of his own fiction. Moreover, he will embody this very character by building a life that matches the manual and perhaps write his own tips and cultivate his own myth, ultimately embracing the immanence of the apocalypse.

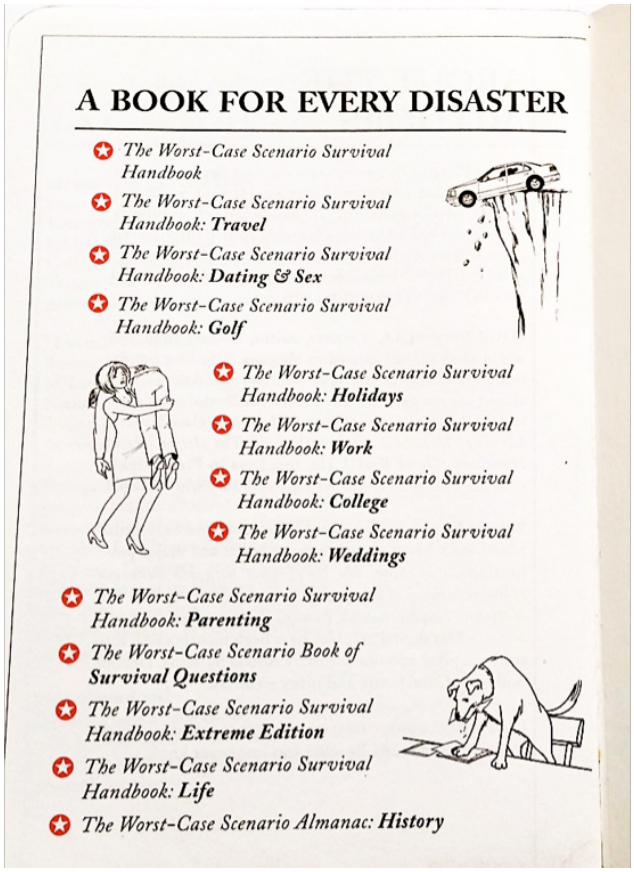

FIGURE 88 DAVID, BORGENICHT AND JOSHUA PIVEN. *THE WORST-CASE SCENARIO SURVIVAL HANDBOOK: TRAVEL*, 2010.

5.4 From Survival to Self-help

"Always be ready for the worst — you are at risk as soon as you step outside of your door" states *The Worst-Case Scenario Survival Handbook: Travel* (2010) (Figure 88).[325] In recent years, the rhetoric of survival has become ubiquitous. Titles that span from the banal, to the hilarious, to the bizarre, invite people to buy books that tell them how to prepare for the worst,

> *This book will save your life* (2009), *Pocket Guide to the Apocalypse* (2005), *How to bury your goods* (1999), *Maritime Terror* (2011), *Life without refrigerat*or (2013), *Arming for the Apocalypse* (2012), *How to survive a robot uprising (2018)*, *How to live with an idiot* (2005), *Happy Healthy and Prepared: top tips from the host of Survival mom radio network* (2014), *Surviving the Economic Collapse* (2013), *How to prosper during the coming bad years* (2014).[326]

Survival has become the cliché of 20th and 21st century marketing, feeding into paranoia about the future as much as desire for adventure and heroism. Capitalising on the conceptual presupposition that bad days are coming, survival manuals exploit the selling ability of warnings, proposing solutions for all kinds of insecurities. However, how many books does one need to read if they actually want to survive? How many survival techniques do they need to know? How many worst-case scenarios do they need to anticipate? How much do they need to spend to replicate their entire life on a minimalist and survivalist scale?

There must be a malicious rationale, in this compulsive overproduction of survival literature and it is at this point worth questioning what it is that is so seductive about it. Clearly there is a pragmatic element to how-to instructions. Users guides, for instance,

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[325] David Borgenicht and Joshua Piven *The Worst-Case Scenario Survival Handbook: Travel* (California: Chronicle Books LLC, 2010).

`[326] Neil Strauss, *Emergency: This Book Will Save Your Life* (Toronto, ON: HarperCollins, 2009); Jason Boyett *Pocket Guide to the Apocalypse: The Official Field Manual for the End of the World* (Orlando, FL: Relevant Books, 2005); Eddie The Wire, *How to Bury Your Goods: The Complete Manual of Long-Term Underground Storage* (Port Townsend, Wash. : Breakout Productions, 1999); Jim Gray, Mark Monday and Gary Stubblefield, *Maritime Terror: Protecting Yourself, Your Vessel, and Your Crew against Piracy* (Boulder, Colo: Paladin Press, 2011); Susan Gregersen, *Life Without Refrigeration* (Createspace, 2013); James Ballou, *Arming for the Apocalypse: Assembling Your Survival Arsenal While You Still Can* (Paladin Press, 2012); Daniel Wilson, *How to Survive a Robot Uprising: Tips on Defending Yourself against the Coming Rebellion* (New York: Bloomsbury Publishing USA, 2018); John Hoover, *How to Live with an Idiot: Clueless Creatures and the People Who Love Them* (Franklin Lakes, N.J: Career Press, 2005); Lisa Bedford and Bethanne Jones, *Happy Healthy and Prepared: Top Tips from the Host of Survival Mom Radio Network (*Amazon Digital Services LLC, 2014); Piero S. Giorgio, *Survive the Economic Collapse: A Practical Guide* (Whitefish, MT: Washington Summit Publishers, 2013); Howard Ruff, *How to Prosper During the Coming Bad Years in the 21st Century* (New York: Berkley Books, 2014).

clearly explain the mechanics of how a product works; traveller guides give precise information about places; medical manuals give information about the body. What I have been calling survival guides however, prepare for the unpredictable, they are the direct result of the desire to control the unexpected and simultaneously to be seduced by it. In this sense they are attempts to manage risk. They turn "real facts" (or experiences) into *exempla* for the future combining info pasted from all sort of sources.[327] Unlike users guides; however, survival manuals cannot guarantee that what they say will work. In this sense, they are comparable to magic books: saying the formula will not necessarily make the trick. Asking whether the formulaic template of how-to guides effectively equips its readers for the situations that they describe, I shall consider what survival manuals inherited from books of magic.

Like survival handbooks, most magician and trickster manuals translate hands-on experience (or actions) into how-to instructions to be repeated. They are simultaneously loosely autobiographical and surrounded by secrecy, most commonly written by the illusionists themselves and sold as the emanations of their almost supernatural abilities. Thanks to the publication of a banned manual that the CIA commissioned from the magician John Mulholland in 1953, the various collaborations between magicians and the secret service have become public knowledge. These revelations have reinforced the perceptual ties between a real and an imagined James Bond, Rambo or Houdini, conferring them to be the incarnations of the risk taker *par excellence*.[328]

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[327] Survival manuals are rooted in travelogues and encyclopaedias, where "real facts" (or experiences) are turned into exempla: household encyclopaedias, accounts of disasters, medical manuals, the Boy-scouts book (whose motto is "be prepared!"), travel guides, housekeeping manuals, military tactics, even manuals for magicians and tricksters. To discuss each one of these, unfortunately, is beyond the scope of this research and I shall just note a few examples. *Vitalogy* (1899), for example, was a quirky health encyclopaedia for the household comprising warnings and instructions of how to deal with practical accidents and unexpected illnesses via a mix of quack medicine, herbal remedies and believes of the time; *The Household Cyclopaedia* (1881) by Matthew Spong, is a "must have" according to the website Modensurvival.com, including a variety of topics such as manure, pottery, animal diseases, metallurgy. Accounts of disasters, such as *The San Francisco Calamity by Earthquake and Fire* (1906) by Charles Morris, were among the first attempts to estimate the damages and the survival strategies for future calamities in the USA, establishing the basis for what would later feed in Civil Defence preparedness booklets and strategies. A similar example is *The Complete Story of the Italian Earthquake Horror*, *The World's Greatest Disaster, Death and Ruin by Earthquake, Tidal Wave and Fire* (1909) by Martin Miller.

[328] H. Keith Melton and Robert Wallace, *The Official CIA Manual of Trickery and Deception* (Harper Collins e-Books, 2014).

FIGURE 89 WILL GOLDSTON, *SECRETS OF FAMOUS ILLUSIONISTS*, 1933.

Harry Houdini's *Miracle Mongers and their Methods* (1920), contains illustrations combined with photographs of his famous feats in order to demonstrate some of his secret techniques. These include lock picking, barrel escaping, heat resistance, as well as a list of antidotes for snakebites.[329] Revealing the tricks of the profession, however, did not compromise Houdini's reputation of exceptional mastery, nor the aura of occult and magic surrounding his persona. Presenting his legendary actions as instructions did not mean that anyone could reproduce them, the effect was rather the opposite, blustered by the fact that his feats remain insurmountable to this day. Capitalising on this very inaccessibility, Will Goldston published *Secrets of Famous Illusionists* (1933) (Figure 89) a monumental publication of the secrets of famous magicians composed of four tomes.[330] Goldston, a friend of Houdini but a less successful magician, made a career of publishing instructional books that he sold in his London shops together with various tricks. Elegantly bound in red leather, these books were only available in limited editions and a lock protected the secrecy of their content; the buyer was required to sign a non-disclosure agreement on purchasing them.

Were these books actually useful for practicing magicians? Was Goldston's locker just a marketing prop to make the book more desirable? Was the emphasis on secrecy necessary to create an aura around a knowledge that remained ultimately occult? As instructional and

[329] Harry Houdini, *Miracle Mongers and Their Methods: A Complete Exposé* (New York, N.Y: Cosimo Classics, 2007).
[330] Will Goldston, *Secrets of Famous Illusionists* (London : John Long, 1933).

revealing as they could have been, the manuals' claims to be able to translate magicians' feats into reproducible instructions was a deceiving exercise. It might as well have been just an expedient to maintain the attraction to magic at a time when the public was progressively less inclined towards the supernatural. Not only was Goldston not necessarily a reliable narrator offering dangerous secrets, but in addition there is a crucial difference between reading about techniques and actually acquiring the ability to reproduce them.

This distance between reading a magic formula and making a magic trick may apply sometimes to survival instructions. Instructions may have rightly become important tools for communicating and governing risk, but sometimes they are just coping strategies that further increase the distance between the preparation and the real event. In the absence of knowledge about the future, survival instructions give us a plan, but they don't necessarily guarantee what they promise: sometimes they are used to conceal the fact that we just don't know. The nuclear fallout booklets, discussed at the beginning of this chapter, for example, offered how-to instructions that partially reassured the reader by breaking down the big unknown of the bomb into a set of reproducible actions. However, did owning those action plans imply that people were prepared? How could that have been possible if even the authorities did not know what the real and long term effects of a nuclear explosion would be? The booklet functioned as a palliative for the absence of essential knowledge about the bomb, which remained, ultimately unknown, or "occult": from the Latin *occultus*, meaning concealed. [331]

In a similar vein, templates with instructions guide us through speculative or possible scenarios of which we have no control. The future worst case scenario haunts us with an almost supernatural traction, but the survival manual substitutes anxieties about the future with histories of self-efficacy and endurance. Its format is explicitly designed so the reader can identify him or herself with the protagonist. Self-help books today also promise life changing results by following their simple advice, but between the hope of success and its realization remains a gap that authors desperately aim to conceal. This is even more extreme in regards to survivalist literature that prepares the reader for the apocalypse, which is so intensely perceived as a real possibility that is turned into a lived experience of pre-apocalyptic situations. "Survivalism helps ordinary people imagine themselves as extraordinarily useful", wrote Richard G. Mitchell, an anthropologist whose recent work investigated the increasingly popular phenomena of prepping:

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[331] I use this word here not so much as a reference to any so called "occult arts", but to emphasise the level of incommensurability of radiation as in Robert Bendiner definition in the Merriam Webster dictionary: "occult matters like nuclear physics, radiation effects and the designing of rockets" *Merriam-Webster.com* Dictionary, s.v. "occult," accessed February 21, 2020, https://www.merriam-webster.com/dictionary/occult.]

> Are they always realistic about what they do? No. They buy gas masks, build fallout shelters and hoard food supplies when they know the real problems are with big business, foreign policy and changing morals (…) The point of survivalism is not practical security but risky adventure, of exploring the unknown, testing the limits.[332]

The instructional style has an awkward relation with reality. Survival manuals may reassure, or may enthuse risk taking, but the knowledge of the real experience of risk remains mostly inaccessible to the readers. In this sense, they operate in the aesthetic dimension of risk, enabling us to mentally rehearse worst case scenarios, but what do they actually prepare us for? As hypothesised at the beginning of this chapter, how-to guides are examples of "the plotting potential" of risk. In cases where there is no factual information about possible dangers, instructions step in by giving plans for action to manage them as risks. However, having a plan does not mean being prepared, and we make plans even more when we do not know what will happen; instructions do not necessarily generate reliable knowledge but mostly a set of actions for compensating the absence of it. Action plans reiterate a literary negotiation and struggle with the unknown via speculations about the future and our human attempts to prepare for it.

[332] Richard G. Mitchell, *Dancing at Armageddon: Survivalism and Chaos in Modern times* (Chicago: University of Chicago Press, 2001).

5.5 Conclusion

Over the past 60 years, how-to survival guides have reached mainstream attention, lasting beyond the nuclear fallout anxiety of the Cold War. They have become an important part of modern life by progressively dealing with the universe of risks (or worst-case scenarios) that have, in the meantime, emerged. There are survival guides for everything, from financial meltdown to home and road accidents, from occupational safety to emergency preparedness, from ecology to self-defence, to the widespread aspiration of maintaining an adventurous lifestyle. The instructional style persisted within and beyond this "landscape of threats", into the widespread phenomenon of self-help literature, one of the most profitable publishing sectors today. Self-help manuals cultivate aspirational characters with reassuring and confidence busting titles, guiding us out of our insecurities in the promise for a healthier, richer or more successful life. Thanks to a proliferation of such publications, instructions have proved to be a very successful and enduring model for sharing knowledge, managing to infiltrate all sorts of initiatives with ambiguous and controversial ends. In a sense, they compensate for the absence of knowledge that we inevitability experience when thinking about our future. How-to manuals guide us (or pretend to) through the uncertainty that is at the basis of situations laden with risk.

The immanence of the worst-case-scenario is not the sole territory of preppers. Today, the US Federal Emergency Management Agency insists that preparedness is the responsibility every citizen and encourages all Americans to "get in touch with their inner survivalists" and not rely too much on the work of the emergency services.[333] The head of FEMA under President Obama, Craig Fugate, recently declared in an interview: "I encourage all Americans to take some simple steps to make their families more prepared, such as developing a family communications plan". A similar narrative comes from Jonathan Aiken, a spokesman for the American Red Cross, speaking in the same interview: "I think what people have come to realize is that [organizations like ours] can't always be everywhere" and "in the event of an emergency, people need to be prepared to take care of themselves for a couple of days until the rest of us can come out." [334]The family communication plan that Fugate talks about is essentially a new version of the old Civil Defense booklets that is now been turned into a template for people to download and fill-in

[333] The quote is from Jessica Bennett, "Rise of the Preppers: America's New Survivalists." *Newsweek* 27 December 2009. Accessed 15 December 2019, https://www.newsweek.com/rise-preppers-americas-new-survivalists-75537 All quotes in this paragraph are from the same article.
[334] Idem.

(Figure 90).[335] The instructional style has given way to the "pure form" template: a risk assessment form with instructions on how to make instructions for any future worst-case scenario. People should learn to identify their own worst case scenarios and devise their own survival strategies: the apotheosis of a self-help mentality.

Originally produced for wartime civil protection campaigns, survival manuals have evolved over recent decades alongside the escalating need for official disaster management policies. New forms of adventure-seeking, apocalyptic fiction and media coverage of global threats have bred an industry-turned-genre. At the same time, scenario design has become a prominent feature of the safety industry; from FEMA's "family disaster plan" to online resources made by so-called *prepping* enthusiasts. These resources are shaping a new model of survivor that far away from the improviser, self-made adventurer (a la Robinson Crusoe), looks more like a trained *prepper*, highly informed about what comes from the future and equipped with the tools necessary to deal with it, yet stranded by the inability to truly have control.

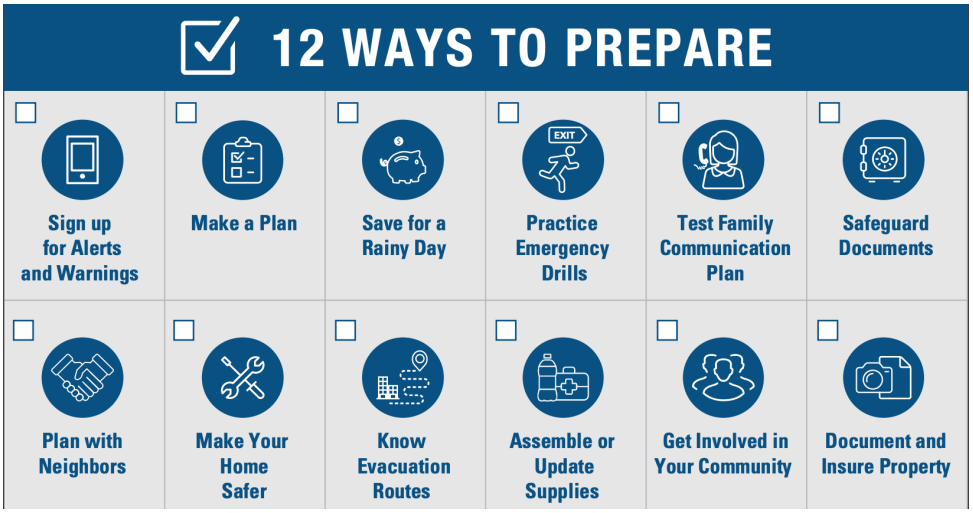

FIGURE 90 "CREATE YOUR FAMILY EMERGENCY COMMUNICATION PLAN", 2018.DOWNLOADABLE PDF ISSUED BY FEMA. PAGE 5 (DETAIL).

[335] See for example: USA. Federal Emergency Management Agency. "Create Your Family Emergency Communication Plan" (FEMA P-1094 Catalog No.17166-2). *Fema.gov*. July 2018. Accessed 20 December 2019, https://www.fema.gov/media-library-data/1530826217620-10775bfcb5d7600be8e6b88308b24d8c/P1094_CreateYourFamilyEmergencyCommunicationPlan_070318.pdf.

6 CHAPTER. How to Provoke an Accident

Go outside of you. Look at yourself walking down the street. Make yourself tumble on a stone and fall. Watch it. Watch other people looking. Observe carefully how you fall. How long it takes and in what rhythm you fall. Observe as seeing a slow motion Him. Yoko

Yoko Ono, *Falling Piece*, 1964 spring.

6.1 Introduction

The previous chapters demonstrated how the proliferation of warnings and precautionary images in the early 20th century, is the effect of an awareness to and management of risk: from the attempts to reduce epidemics, to the prevention of accidents in the street, at home and at work. Public institutions and private businesses have produced a multitude of techniques to control or even capitalise on the risks in the future. Workers, pedestrians, housewives, drivers, smokers, and children have since all been the target of warnings and instructions for correct behaviour of different kinds, scared or gently persuaded, instructed or left completely puzzled. They have been saved or endangered or in many cases just left indifferent.

The tension between different perceptions of risk and ways to deal with it (what risk psychologists call the perception gap) is what in the 21st Century remains an unresolved problem for campaigners and safety professionals.[336] It is a dilemma that has to do with personal freedom and decision making, and with the human right of being and feeling safe.[337] The role of images and art in this dispute has been instrumental in enabling people to change their mind: signs and instructions have helped people perceive dangers and avoid them, especially before legislation was put into place (see occupational safety, Chapter 2). Images, however, can also aestheticize danger by celebrating it, they can be reassuring or threatening, they can evoke danger or embody it. By changing people's minds, moreover, images can change behaviours.

In the previous chapters I have discussed various methods for risk visualization from the perspective of a design and art historian. Not so much focussing on the theory of warnings as approached in psychology and ergonomics, I have drawn attention to warnings in relation to the history and iconographies of safety and security. I have discussed how reassuring or traumatic images have been employed by private and public institutions to manage risk and deter people from reckless behaviours, attempting to alter or manipulate our sense of security. I have reviewed road signs, aimed at capturing attention without generating any emotions. I have examined images for the prevention of accidents from the golden era of

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[336] David Ropeik, *How Risky Is It, Really?: Why Our Fears Don't Always Match the Facts* (New York: McGraw-Hill, 2010).

[337] The Universal Declaration of Human Rights specifically states: "Everyone has the right to life, liberty and security of person. We all have the right to live in freedom and safety. No one should be arbitrarily killed, or deprived of their liberty without good reason." Assembly, UN General. "Universal declaration of human rights." *UN General Assembly* 302.2 (1948). Article 3.

posters, when a modernist style was employed to change people's mind with striking block colours and geometries, catch phrases or surreal juxtapositions. I have discussed how risk is produced in war propaganda, how the morale is kept under control by censoring traumatic images and how the reassuring, subliminal propaganda of insurance advertising persuaded Americans to "invest" in life insurance. I have, finally assessed the efficacy of those methods in relation to the horrors experienced by people and how, eventually, shock tactics where used as counternarratives to such censoring visual narratives. The horrors of concentration camps, the nuclear explosion in Japan, or the wounded soldiers in the war have progressively become an integral part of risk communication from the late 60s up to the 90s, when TV adverts and campaigns spread the panic propelling the AIDS crisis. The lesson learned from this assessment is the identification of a particular stylistic feature that focuses not just on visualising risks, but in suggesting methods to manage them, what I have called the "instructional style of safety communication".

I have defined the instructional style as one that creates and disseminates gestures through concise and clear instructions. While disregarding originality it thrives on the repetition of *topoi* and tropes to facilitate emulation and iterability. It also has a performative aspect, as it creates models for actions that viewers should emulate or avoid in order to manage, or cope with the risks in their lives. I shall now discuss more in detail the "instructional style" from an iconographic perspective. The gestures and actions that Safety First popularised, I will argue, often recycled the imagery of older cautionary and moral tales. To this extent, the instructional style contributed to the re-actualisation of this older visual vocabulary, where pictures of well-dressed men, falls in the street, stray animals, or children playing have been appropriated and recontextualised for the purpose of safety communication. This chapter will chart a journey through such representational motifs through the lens of Francis Alÿs's art. By systematically engaging with these "visual parables" through paintings and performances, I will maintain, Alÿs's art dwells in the space between the represented instruction and its performative version, inviting us to consider if and when cautionary messages apply to the reality of existence.

6.1 Cautionary Tales and the Power of Instructions

FIGURE 91 FRANCIS ALŸS, *UNTITLED (ORIGINAL)*, 1995. OIL AND ENCAUSTIC ON LINEN ON BOARD, IN TWO PARTS. PRIVATE COLLECTION © FRANCIS ALŸS AND DAVID ZWIRNER

This section focuses on Francis Alÿs's image making practice, its relation to the artist's environment and performances, and the iconographic repertoire of cautionary tales. Described by the artist as *parables*, his paintings often depict real events in an instructional fashion, where gestures and actions exist as both situated occurrences and repeated instructions for the future. The painted image often represents a distillation or a starting point for Alÿs performances, and negotiates their "eventuality" with their existence as myths and *exempla.* The relationship between image and actions is key in these works, even if the actions never take place, as what is central is how a picture can sublimate the poetical essence of a human gesture. Like safety instructions, the painted image is never a representation per se, but has an indexical existence; it represents a possibility of performing in the world. Alÿs paintings, I will argue, push the instructional style to the point of a surreal paradox, where attempts to translate an isolated event into a demonstration for the future is both a humorous and self-deceptive operation. In Alÿs's work, the cautionary message is turned into a chronicle of absurd modes of resilience through improvisation. It is also an homage to the repetition and iteration of simple gestures.

Known for his poetical and socially engaged participatory performances such as *When Faith Moves Mountains* (2002) or *The Green Line* (2004), Francis Alÿs's actions, films and paintings are parables of the absurdity of contemporary life. His engagement with risk taking does not require much explanation. For ten years, camera on hand, Alÿs chased tornados in

the Mexican desert in an attempt to reach the peaceful zone at their centre. The compulsion to run into the tornado and delve into its spiralling unrest was a metaphor for the pursuit of utopian ideas, which only exist in the form of unattainable desires. It played out as an allegory to the unstoppable escalation of violence experienced in his contemporary Mexico. In another provocative work, *Re-enactment* (2002), he was twice filmed by his collaborator Damien Ortega, as he walked undisturbed through Mexico City with a loaded gun in his hand. Eventually the police noticed him, but his privileged position as a white European artist in Mexico City saved him from trouble.

Despite such blatant examples, provocation or transgression are not what Alÿs's work is about. His attempt to jump into the tornado is more comical than heroic and his daring attitude disappears in comparison to the history of endurance art (from Chris Burden to Marina Abramović). Alÿs's aesthetic is more enigmatic than confrontational, his visual language is concise; sublimated rather than sublime. His images seem to rest in a state of potentiality, in a before and after that capture the instructional style but subverts its didactic advice. Alÿs's interest in visual parables and how they relate to real actions will be the focus of the following paragraphs.

Most of the images that Alÿs has created throughout his career seem to emerge from and feed into a chain of mental associations, a process of recycling and reworking that is both conceptual and concrete, feeding into an economy of images and their ability to adapt to different contexts. Some of his earliest paintings focus on rather obscure gestures and incongruent situations, combining imagery from Mexican advertising and those of other influences such as Rene Magritte or the tarot cards. His early series *The Liar, the Copy of the Liar* (1991–94) featured a character dressed in a smart looking suit, whom he had seen in Mexican hand painted adverts for occasion attire. Borrowing their stereotyped language, was a way to engage in the discursive space that these images occupied, as both hypothetical and old-fashioned aspirational models of conduct, but also as comical parables of the human condition. Positioned against a flat background and engaged in all sort of incongruous actions, such as sitting on a bed and holding cushions pressed between his arms and thighs (Figure 91), the man in the suit loses all his glamour. He becomes a tired figure in need of care, perhaps emerging out of an instructional medical manual and ridiculed in his aspirations for attainment and success (Figure 92). [338] Pictured in all sorts of seemingly mundane and yet absurd situations, this figure acquires the enigmatic, arcane allure of an

[338] The use of pillows in this image is most probably linked to Alÿs's work Placing Pillows, one of the first he made after moving to Mexico City, where he allegorically repaired broken windows in the city using pillows.

allegory, whose seemingly nonsensical gesture happens to be an *exemplar* for *all* smartly suited individuals and their supposed respectability.

FIGURE 92 "CALF PACK COMPLETED", COLOURED PLATE FROM THE NATURAL METHOD OF HEALING BY FRIEDRICH EDUARD BILZ, PAGE 1843 (FRENCH EDITION, DETAIL).

Not surprisingly, commentators of this body of work have invoked Rene Magritte's influence (1898-1967).[339] Magritte's path to Surrealist aesthetic, followed from his interest in popular culture, his background in advertising and his well-documented practise of early appropriation.[340] These include the famous man in a grey suit (that we also see in Alÿs's paintings) but also the illustrations from medical manuals and pulp novels, which Magritte used to extract and transpose out of context to exploit the mysterious nature of their semiotic language. One such example is the painting *Man with Newspaper* (1928) (Figure 93), which reproduces an illustration from Friedrich Eduard Bilz's (1842-1922) manual *The Natural Method of Healing* (1898), [341] while also baring the instructive similarities of both Alÿs's work and the cigarette card *When Smoking Use an Ash-Tray* (1931) (Figure 95). In Blitz's manual, the image advertised the benefits of a stove, but in the cigarette card, the same composition and similar bourgeoise interior of the manual are used as a warning against cigarette burns on sofas. Magritte, instead, reappraised the same iconography to play with

[339] "Magritte's visual interpolations and in fact serve the same purpose, which is to unblock a situation and to create a kind of suspense." Francis Alÿs, Olivier Debroise and Rafael Ortega, *A Story of Deception: Historia De Un Desengaño ; Patagonia 2003-2006*, (New York: Museum of Modern Art, 2010), 19.
[340] Neil Matheson, *The Sources of Surrealism: Art in Context*, (Aldershot [England] ; Burlington, VT : Lund Humphries, 2006).
[341] Friedrich E. Bilz, *[das Neue Naturheilverfahren.] the Natural Method of Healing. a New and Complete Guide to Health ... Translated from the Latest German Edition, Etc*., (London; Leipzig : F.E. Bilz, 1901. First ed.1989). Available on the Internet Archive, accessed 18 December 2019, https://archive.org/details/b20417081_002/page/1912/mode/2up. Magritte discussed the provenance of the image in a letter to André Bosmans written on the 6th of December 1960.

its reiteration and recognisability; a copying process that toys with the viewer's sense of "having seen" (clearly also used in Alÿs's work).[342]

FIGURE 93 RENÉ MAGRITTE, L'HOMME AU JOURNAL (MAN WITH A NEWSPAPER), 1928. OIL ON CANVAS, TATE COLLECTION

Similarly, Alÿs was interested in the discursive space that the replication of this iconographic motif could generate, but also in the economy that these images embodied.[343] In line with this idea, he invited local billboard painters, the *Rotulistas*, to reproduce enlarged versions of his small paintings in their own style and to sell them in the art market. Here these works became a part of, and contributed to produce a chain of copies and appropriations that mimicked the same process of recycling from which they originated in the first place.

[342] For a study of the use of déjà vu and doppelgangers in Alÿs's practise: see Andres David Rosero Montenegro, *Politics and Aesthetics of 'the Uncanny': Francis Alÿs, Santiago Sierra and Tania Bruguera*, (PhD diss., Dept. of Philosophy and Art History, University of Essex, 2014).
[343] Francis Alÿs, Juan García, Emilio Rivera, Enrique Huerta, and Theodora Vischer, *Sign Painting Project* (Göttingen: Steidl, 2011).

FIGURE 94 PLATE FROM *THE NATURAL METHOD OF HEALING*, 1898. FIG. 392

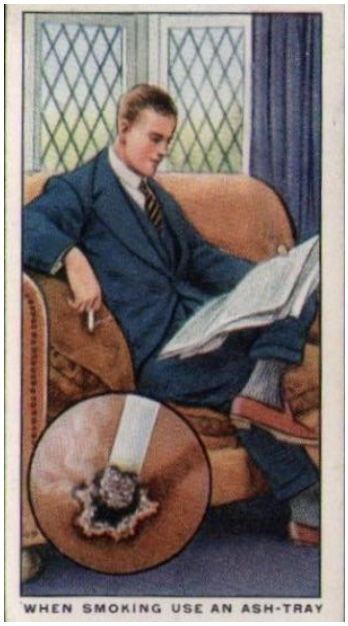

FIGURE 95 "WHEN SMOKING USE AN ASH-TRAY", ONE OF 40 *SAFETY FIRST* CIGARETTE CARDS, 1931. ISSUED BY THE BRITISH AMERICAN TOBACCO COMPANY

Compared to Magritte, however, Alÿs seems less concerned with sub-conscious ideas and more with observing social habits and codes of conduct, turning them into parables of modern life. As Bruce Ferguson wrote: 'Alÿs's images depart from the surrealist tradition insofar as they do not represent "illusions", but "possible events in the real world"'.[344] It is perhaps the paintings' existence as possibilities, both in the past and in the future, that suggest to us the affinity with cautionary tales: Alÿs's images turn the represented situation into an exemplar. In this sense they go beyond the painted billboards that have inspired them, to engage with a much more complex iconographic repertoire that span from tarot cards to illustrated well-being manuals, first aid instructions, and even the gentlemen's guide *The Frauds of London* (1829) (Figure 3, Chapter 1).

[344] Francis Alÿs and Bruce W. Ferguson, *Francis Alÿs: Walks = Paseos,* (México, D.F: Museo de Arte Moderno, 1998), Cited in Montenegro Rosero, *Politics and Aesthetics of 'the Uncanny': Francis Alÿs, Santiago Sierra and Tania Bruguera*, 74.

In an *Untitled* triptych from *The Liar* series, the ordinary man sits on a table with a non sensical arrangement of bread, forks and knives that seem to prevent him from eating (Figure 96). The image might evoke a normal situation where a person is simply absorbed in deep thought whilst having his lunch, and yet at the same time, the iconography evokes something more mysterious, almost as though he was conjuring a magic act. We are reminded of the iconographic tradition of the magician or fortune-teller that the image both cites and parodies. Seen alongside the tarot cards that may have inspired it (Figure 97), and the version *The Fortune Teller* on *The Frauds of London* (1829) (Figure 98) — note the position and the presence of a knife on the table — the man seems trapped by the impossibility of gazing into his own future, fiddling with tools that he does not know how to use. If we observe these images in relation to some of the *Safety First* (1931) cigarette cards (Figure 99, Figure 100) it seems as if the artist had deliberately parodied their cautionary intent, which has been turned into an incongruent advice that could be read as commentary or as joke. It is a moment of suspension between the everyday and the surreal. We do not know if Alÿs has ever actually seen these cigarette cards, but we can attempt to explain such similarities by tracing, the unorthodox paths through which the visual vocabulary of the instructional style has travelled from imagery used for the prevention of accidents into his oeuvre.

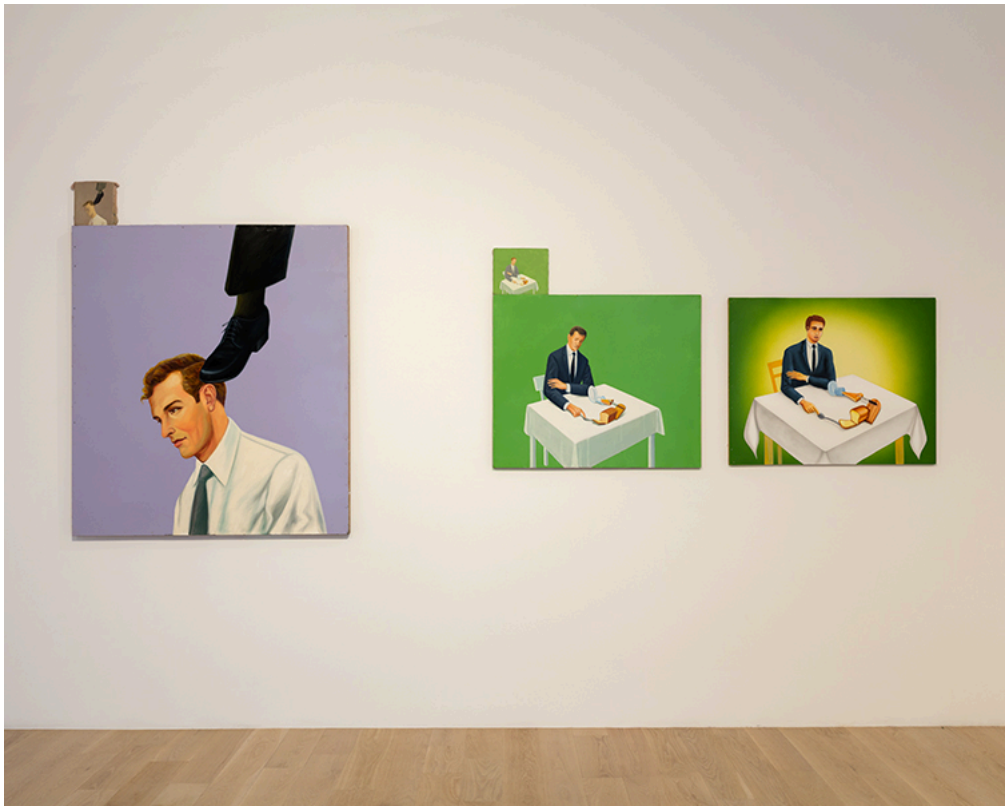

FIGURE 96 FRANCIS ALŸS (WITH JUAN GARCÍA, EMILIO RIVERA, AND ENRIQUE HUERTA). *SIGN PAINTING PROJECT,* INSTALLATION VIEW: INSTITUTE OF CONTEMPORARY ART, MIAMI, 2018. PHOTO FREDRIK NILSEN STUDIO. © FRANCIS ALŸS AND DAVID ZWIRNER

The simplicity and didactic style of early advertising, adopted by Magritte but can also be seen in the cigarette cards, suited Mexico's needs as a country that lacked resources. To this day, there are in Mexico shop signs that are hand-painted by anonymous artisans who tap into the recognisable taxonomy of representational motifs, with very little variation. The parallels between this imagery and the one of cigarette cards, which were also produced by anonymous artists on the basis of representational motifs, begin to appear more clearly. Mexico is in no way an exception. When scrutinizing pedagogical illustrations and charts hung on school walls across India, until very recently (Figure 109), not just the same instructional style is featured, but even a similar Safety First iconography has been adopted to communicate good or bad behaviours to children.[345] Despite the enormous geographic and temporal distances, images with a clear pedagogic intent have relied on a similar iconography to impart knowledge and guidance in an understandable language. The popularity of these motifs can rival the one of religious symbolism, dispersing a laic world view that precedes the advent of risk in mathematical terms, but that perpetuates the same pre-emptive mentality. From this perspective, didactic images, like old fashion cautionary tales and advertising, tap into a lingua franca that transcends particular cultures in order to present possible ways for avoiding or managing the negative consequences of one's own actions. It may be for the above reasons that many of Alÿs's images resemble early 20th century instructional images and illustrations.

FIGURE 98 *THE FRAUDS OF LONDON*, TITLE PAGE (DETAIL) 1829.

FIGURE 97 *THE MAGICIAN,* TAROT CARD - VISCONTI-SFORZA TAROT DECK.

[345] I will consider these aspects at a later stage in this Chapter.

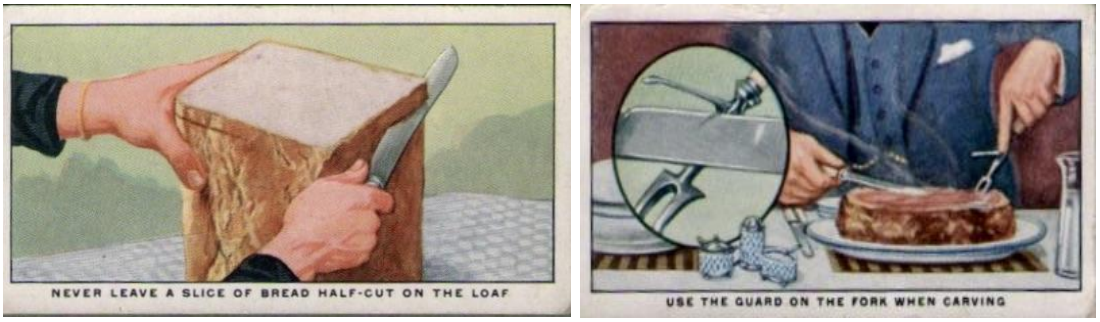

FIGURE 99 "NEVER LEAVE A SLICE OF BREAD HALF-CUT ON THE LOAF" AND "USE THE GUARD ON THE FORK WHEN CARVING", TWO OF 40 *SAFETY FIRST* CIGARETTE CARDS, 1931. ISSUED BY THE BRITISH AMERICAN TOBACCO COMPANY

From representations of virtues in medieval times to ancient medical manuals, to Peter Bruegel's (1525–1569) models of good or bad behaviours in the form of proverbs,[346] images have conferred moral values by showing what might happen. They have given guidance and answers to uncertain futures. Similarly, the tarot's original function was to help make decisions rather than predict the future,[347] and so was the dissemination of instructional public health and safety images. In the same way, Alÿs's images are simultaneously documentations of everyday gestures and instructions of performative actions. They reconcile the everyday with a mythological (or archetypical) dimension where situations are presented as models for being and existing in the world.

This parallel becomes the more effective when considering the frequent use of "mottos" in these forms of precautionary imaginary. *Cartouches*, for example, where a common feature of Medieval art that would frame the action with an exemplary message. Mottos have also accompanied many popular illustrations of Modern times; from popular prints of proverbs, to allegorical illustrations commemorating carnival processions. In this sense Pieter Bruegel's famous painting *Netherlandish Proverbs* (1559), depicting over one hundred proverbs, is an exception of such a norm, where a popular moral iconography is appropriated without its corresponding text. [348]

[346] Walter S. Gibson, *Figures of Speech: Picturing Proverbs in Renaissance Netherlands,* (Berkeley: University of California Press, 2010).
[347] Helen Farley, *Cultural History of Tarot: From Entertainment to Esotericism*. London : Bloomsbury Academic, 2019.
[348] Gibson, *Figures of Speech.* In his study of Brueghel's proverbs, art historian Walter S. Gibson has demonstrated that the same iconography was often presented with a corresponding text in forms of minor art.

Precautionary images have an arcane quality for those unaware of the cultural context from which they emerged, whilst their message must have been very clear to their contemporaries. In a similar way the images of cigarette cards are always accompanied by a witty advisory motto or instruction that helps interpret them, but without the text, they remain highly enigmatic and perhaps surreal. In figure 91 for example, the text "Never put a lighted pipe in your pocket", clearly illustrates the image's cautionary purpose, but without it, the picture of a coat with smoke coming out of its pocket evokes a situation suffused with danger, a moment of suspension before the accident happens. This enigmatic effect is what Alÿs, and in part Magritte, deliberately recreated in their works; playing with the strata of meanings and interpretations generated by images when seen out of context.[349]

From old master's proverbs, to the tarot iconography, from *ex votos* to news images, Alÿs's appropriation of vernacular motives is not just an expression of a formal interest for the idea of *versions*, but an open-ended research of the enigmatic connection between events and their pictorial versions. This becomes all the more interesting when one considers, as we will do in the following paragraphs, the cross-fertilisation between Alÿs's paintings, his performative practice and the wider condition of endangerment in Mexican society. Before moving on, however, it should be noted that even if it is unknown whether Alÿs ever laid eyes on the cigarette cards, what matters to the argument is the fact that the makers of the cigarette cards, Magritte, and Alÿs all tapped into a similar visual repertoire. They used an instructional style that was (and still is) accessible and universally understandable: a language of images that deals with every day habits and behaviours, and that consists of the abstraction of gestures that can be repeated *ad infinitum.* Alÿs's imagery shares with these works a fascination for tales and their capacity to convey behaviour; a *lingua franca* that is both universal and unpretentious. Despite all these similarities, however, Alÿs's "instructional style" is neither surrealist nor precautionary. By focussing on the artist's numerous depictions of falls and accidents, I shall demonstrate how Alÿs's anti-cautionary universe throws doubt on what accidents actually are, rather than preventing them.

[349] Magritte notoriously exploited the possibility of free semantic associations in his seminal work *Les Mottes et les Images* (1929), however Alÿs's appropriation, as we have seen, is more concerned with the relation between image and action rather than the construction of meaning.

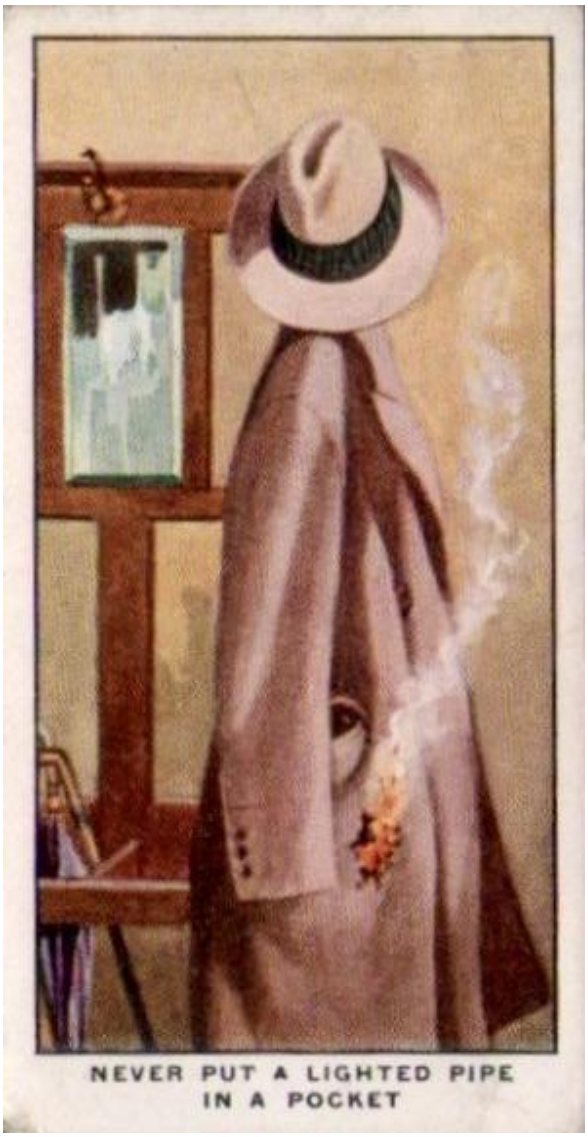

FIGURE 100 "NEVER PUT AL LIGHTED PIPE IN A POCKET". ONE OF 40 *SAFETY FIRST* CIGARETTE CARDS, 1931. ISSUED BY THE BRITISH AMERICAN TOBACCO COMPANY.

6.2 Phenomenology of an Accident

FIGURE 101 AUSTIN OSMAN SPARE, *THE FOOLISH MAN*, HAND-PAINTED TAROT CARD, C.1906. THE MAGIC CIRCLE MUSEUM LONDON.

Is there any symmetry between images and actions, axioms and accidents, instants and eternal repetition? Looking for a point of coincidence between these seemingly antithetical concepts, Alÿs has engaged throughout his entire career with accidents of all sorts. He has, for example, explored the motif of "the fall" through the juxtaposition of drawings, diagrams, found material, and performative actions, testing out the possibilities of this simple gesture to become a universal "visual parable". [350] This commitment is particularly evident in Alÿs's depictions of the fortuitous encounter with animals in the street, where the usual man always ends up in the floor every time he stumbles into a cat, a dog or a pigeon.

[350] The motif of the fall is an art history classic in its own right, including in contemporary art. Notable examples include Bas Jan Ader's performance of five falls filmed in 16 mm: *Fall 1*, *Los Angeles* (1970), *Fall 2*, *Amsterdam* (1970), *Broken fall (geometric)* (1971), *Broken fall (organic)* (1971) and *Nightfall* (1971). See also Robert Longo's *Man in The City* (1980s) series of iconic photographs. See Margaret Iversen, *Chance*, (MIT/Whitechapel Gallery, 2010).

Alÿs has employed this motif in drawings, performance pieces and films, articulating it in several different versions, with the same action animated by various animals appearing as though they were coming from different directions, as accidents imminent to occur (Figure 102, Figure 104, Figure 105). Here, the "visual parable" of a man falling evokes the symbolism of the first tarot card, picturing the *mad man* or *chancer who* wonders through the world with a barking dog at his feet (Figure 101), but also the demonisation of stray animals in "civilised" countries.

FIGURE 102 FRANCIS ALŸS, *DÉJÀ-VU*, 1996 TO PRESENT. DIPTYCH, ENCAUSTIC ON CANVAS.
© FRANCIS ALŸS. © THE ARTIST AND DAVID ZWIRNER

In a diptych from the series *Déjà vu* (1996) (Figure 102), a black cat interferes with the path of a pedestrian on a sidewalk.[351] Painted in small letters, a seemingly nonsensical text advises the viewer,

> Step on Line, break your father spine,
> Step on a cat, break you mother's back

The sound advice of proverbs is frustrated by nonsensical text and the lack of rhyme in the second line. The combination of the black cat with the rather unstable steps gives a sense of precariousness and possibility, but no accident is depicted yet and the cropping of the image invites to pay attention to the action of walking. The warning message is deliberately entangled with a hint to superstition and magic which the black cat notoriously represents in popular culture. Though evoking the immanent presence of luck (and the potential accidents) in everyday life, the work operates in a manner that is symmetrically opposite (or complementary) to Safety First cautionary messages. The possibility for something to happen is illustrated as a generic action, something that must have happened somewhere at some point, but the preventative methods seem out of reach or even irrational. When comparing the diptych with the Safety First cigarette card *The dangers of polished floors* (1931) (Figure 103*),* it is clear that the former, as opposed to the latter, does not offer any preventable cause for the accident, nor any real method to manage it. Should the viewer of Alÿs's painting be warned about avoiding animals in the street just like the gentlemen in the cigarette card should be aware of highly polished floors?

FIGURE 103 "THE DANGERS OF HIGHLY POLISHED FLOORS", ONE OF 40 *SAFETY FIRST* CIGARETTE CARDS, 1931. ISSUED BY THE BRITISH AMERICAN TOBACCO COMPANY.

[351] The *Déjà vu* series (1996 – 2002) is composed of quasi identical paintings that the artist exhibited in different rooms of the same exhibition to create the idea of "having seen". See Stephan Urbascheck, "Poetic Gaps: A Tour of the Exhibition", *Francis Alÿs*, eds. Löckemann, Karsten and Stephan Urbaschek (Munich: Sammlung Goetz, 2008). See also Montenegro Rosero, *Politics and Aesthetics of 'The Uncanny'.*

FIGURE 104 FRANCIS ALŸS, *OUT OF THE LAST CLOWN*, 1999 OIL AND ENCAUSTIC ON WOOD© FRANCIS ALŸS. © THE ARTIST AND DAVID ZWIRNER

By adopting the black cat crossing (a common omen of bad luck) as a subject, Alÿs's work humorously invites the acceptance of fortune while demystifying the attempts to control it. In this sense, it parodies accident prevention illustrations, but also devotional images such as *ex votos* — the small paintings traditionally commissioned in Mexico when loved ones escape or survive a terrible event. These are apotropaic images that specialised artists are commissioned to paint in gratitude to a Saint or the Virgin for the narrow escape, thus working as both reminders and warnings of tragic episodes. Rather than identifying the causes and consequences of these accidents for future pre-emptive measures, *ex votos* imply

that all one can do is to rest assured in the hands of superior forces; all that can be done is pray to God.[352] The painting thus emerges like a parody of both rational and irrational pre-emptive measures.

In the years that followed, Alÿs returned to explore the fall with different mediums, almost as if he had to test its phenomenology and not just its representation. In 1997, one year after the *Déjà vu* was painted, Alÿs made a video, *If you are a typical spectator, what you are really doing is waiting for the accident to happen,* framing the footage at street level. In the short film, the camera follows a rolling water bottle as it is pushed by the wind and gets kicked from foot to foot. As our expectations build up regarding the fate of this humble protagonist, it is the cameraman, the artist himself that provokes a car accident: the camera crashes and the films ends. Whilst the action encapsulates the artist's clumsy attempts to negotiate his role of foreign observer of the city, the artwork's title deserves further consideration. In its advisory tone and catchiness, it reframes the idea of alertness implied in warning messages as one of spectatorship. Moreover, the accident cesses to be something to prevent and becomes something that one may seek as necessary experimental stratagems.

The Last Clown (1995- 2000*)*, (Figure 104, Figure 105) for example, is a work inspired by a genuine fall that occurred when Alÿs was walking in a park with his friend and collaborator Cuauhtémoc Medina. [353] The two were absorbed in intellectual conversations and the fall became an occasion for derision and fun. Drawing from this single accident, the artist translated it into a video animation, a sequence of drawings and a multitude of studies from the series *Déjà vu.* The work is a meticulous attempt to observe "the fall" with a forensic attention, to distil it into slow motion, which is in itself necessary to his re-enactment. This investigation attests to Alÿs's playful engagement with the tropes and methods of slap stick: the skilled staging of accidents that actors acquire by training how to fall in order to provoke laughter. Alÿs has referred to this work as an allegory for the predicament of artistic creation; the accident becomes an encounter that one seeks to produce. Subverting the safety advice that accidents should be avoided, the artist plays the part of the disobedient, indulging in the playfulness of the fall as a deliberate act. There is, however, more to the accident than the ambiguity of tragedy and humour in the appropriation of cautionary clichés.

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[352] Although a perfect example of a superstitious worldview, and therefore the opposite of a rational risk management mentality, and although retroactive rather than precautionary, the ultimate function of *ex votos* remain one of warning. For an art historical account of Ex votos see Georges Didi-Huberman and Gerald Moore, "Ex-voto: Image, organ, time," *L'Esprit Créateur* 47.3 (2007): 7-16.

[353] Francis Alÿs and David G. Torres, *Francis Alÿs*: *The Last Clown*, (Barcelona: Fundació "La Caixa", 2000).

If, as in Francis Bacon's (1561-1626) scientific methods, an experiment is a provoked accident that is necessary in order to find something out, in Alÿs's work the accident (or incident) also acquires an experimental and creative value.[354] It becomes something that one seeks and explores as a poetical prop, through a kaleidoscopic multiplication of images, words, mediums and actions. Yet, unlike in a Baconian experiment, it is not a universal law that the artist seeks, but a fable, a "once upon a time" that reclaims the accidentality of an episode that is true only "in a given situation".[355] When recorded or experienced, the accident does not become a formula, but it does create the presupposition for its own re-enactment: "each progression is indebted to that which precedes it."[356] The accident becomes, in the artist's work, the necessary condition for knowledge to occur, the *locus* or situation where the contingent encounters the unending, were *Kairos* meats *Kronos* (see chap.5).

FIGURE 105 FRANCIS ALŸS, STUDY FOR *THE LAST CLOWN*, 2000. WATERCOLOUR, ENAMEL AND PENCIL ON EIGHTEEN SHEETS OF TRACING PAPER. PRIVATE COLLECTION. © FRANCIS ALŸS. © THE ARTIST AND DAVID ZWIRNER

A similar enquiry into the phenomenology of the accident also partially explains an artwork such as *Tornado* (2000) (Figure 106). The video maintains some of the formal qualities of the 1997 film, with rough footage taken with a camera at the mercy of the elements. In the book that collects the sketches and ideas behind the project, Alÿs writes,

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[354] See Chapter 2 and also "The Accident", *Cabinet Magazine* 54 (2014).
[355] Francis Alÿs, Cuauhtémoc Medina, Ton Marar, and Alfonso Reyes, *In a Given Situation =: Numa Dada Situaçao*, (Sao Paulo: Cosac Naify, 2010).
[356] *Idem,* 96.

> I read somewhere that concepts are timeless (…) that they can't be told, that they are only actable. I say: how does one narrate a concept that can only be enacted in time?[357]

In the publication, images of the artist's ten year long direct engagement with tornados are alternated with schematic drawings, psychogeographic maps and diagrams, images from Mexican newspapers, and one of his *Lynchings* paintings. This apparently unrelated constellation of images is woven together by the phrase "in a given situation", which overlays each of these images, returning like a mantra throughout the book.[358]

FIGURE 106 FRANCIS ALŸS, *TORNADO.* MEXICO, 2010, 00:42MIN. FILM STILL ©FRANCIS ALŸS

The insistence in a sentence that so clearly evokes the language of empirical testing (the language of an experiment that will lead to demonstrate a scientific law in the Baconian terms) captures the essence of Alÿs's two folded fascination with universal laws and axioms, therefore anticipating the artist's performative action, its attempt to directly translate them

[357] *Idem,* 14.
[358] *Idem.*

into experience or experiment. Its juxtaposition with the imagery in the book, is not less symptomatic. Here sketches and diagrams remind us of our attempts to put order into chaos, to find perfect symmetry and rules, whilst the newspapers images embody the escalation of uncontrollable forces against such attempts. Regardless of which is more real, they both come into existence "in a given situation". These apparently irreconcilable dichotomies are perhaps both part of the experience of life, what philosopher of science Bas van Fraassen calls the Janus-faced nature of experience. "Experience comprises both events that happen to us and our immediate judgements in response to these happenings".[359] The accident, then, the moment of the encounter between the artist and the event of what is 'uncontrollable', becomes the sole moment in which all these elements come to existence, a moment of true sublimity.

Yet this encounter is both unique and universal, it is a *myth* that recurs in a loop, in a temporal dimension that is separated from *chronos* (the concept of chronological time of the ancient Greeks) and exist as parable; an exemplar that persists through the ever-recurrent cycles of human history like a fable. The spiral incarnates both the accidental combination of forces that provoke a tornado (or *remolinos*) as much as the ways in which ideas, images, and events unfold in the form of fables, déjà vu and re-enactments. The spiral, the figure that 16th century philosopher Giambattista Vico (1668–1744) used to illustrate his theory of cycles and re-cycles of human history in *The New Science* (1744), embodies both progression and regression.[360] It is perhaps for this reason that Alÿs's images of, and encounters with "the accident" echo from one work to the other, from the performative to the pictorial, from the vernacular to the sublime as into a spiralling circle of transcendence. Each of these instances, represent a unique "moment of coincidence between the experience of living and the consciousness of existence".[361]

It may be that, if one goes back to the questions raised by our collective and individual need to deal with the risks that surround us — how to make better decisions? How to avoid unnecessary risks? How to not be afraid? — we might learn that thinking in terms of simultaneous oppositions, as the artist proposes, can be more productive than dogmatic formulas. The accident is simultaneously a cliché and an exceptional phenomenon, a disaster

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[359] Anja Jauernig, "Must empiricism be a stance, and could it be one? How to be an empiricist and a philosopher at the same time," in *Images of empiricism: Essays on science and stances, with a reply from Bas C. van Fraassen* (2007): 271-318, 285. For Van Fraassen empiricism is a stance rather than a (quasi-axiomatic) theory. See Bas C. van Fraassen, *Empirical Stance* (Yale: Yale University Press, 2008).
[360] Giambattista Vico, *The New Science (1744).* Unabridged translation with the addition of "Practice of the New Science." Trans. Thomas Goddard Bergin and Max Harold Fisch. 1968. (Ithaca: Cornell University Press, 1984).
[361] Alÿs, *In a Given Situation,* 29.

and a joke, iconography and embodiment, event and its repetition, cautionary tale and slapstick, presence and timelessness, risk and superstition. In a world of uncertainty and improvisation such as Alÿs's, it's not advice that we may find, but the very allegory of predicament, of our never resolved search for answers. Perhaps the awareness of such a condition is what helps most to deal with the unexpected risks that surround us.

The relationships between superstition and risk, control and irreverence, theory and practice return throughout Alÿs's work. The artist's obsession with people tripping, with falls, with impossible sailing and river crossing, reflect his efforts to read and interpret allegories through the gestural forms of empirical knowledge: performances, drawings, and participatory practises. The encounter between the *locus communis* that the artist appropriates and the reality of his environment is a necessary process of juxtaposition, that sublimates the reality of the performances into a mythical dimension of the instruction. Vice versa, the same process of juxtaposition multiplies the correspondences between scenes seen in the street and their iconic versions. To complete such a web of reminders and allusions, then, we should consider how Alÿs's visual vocabulary responds to and engages with the unique circumstances where he chose to operate as an artist: places where the right to be safe cannot be taken for granted.

6.3 Living with Danger and the Shape of Precautions: *Valemadrismo*

As we have seen, Alÿs's quasi-identical paintings, performances, and animations have allowed him to explore the phenomenology of the accident from different perspectives. Alÿs's obsession with falls and accidents, however, becomes even more complex when considering his direct experience of a city like Mexico DF. A city in which the combination of corruption, chaos, and the ever-present threat of earthquakes demands of its population to recur to improvised or unorthodox means of survival. When Alÿs moved to Mexico, a period that coincided with his decision to become an artist, it was not just Mexican billboards that captured his imagination, but also the characters and random encounters. The Mexican capital was an extraordinary source of human, animal and architectural vignettes for the Belgian artist, who did not quite know how to blend in. It was an extensive stage for accidents to happen or be provoked; the empire of the incidental.

In one of his articles, art critic and Alÿs's frequent collaborator, Cuauhtémoc Medina recounts his city at the time when he met the artist, just after the 1984 earthquake.[362] Moved to the city to help out with a post disaster charity programme, Alÿs had just finished a PhD on the Urbanism of Renaissance Italy. His research focussed on the idea of *Buon Governo* (Good Government) as exemplified in Ambrogio Lorenzetti's famous allegorical fresco *Allegoria del Buon Governo*, (1338-1339). In it he scrutinized the ways in which the notions of safety, order, and hygiene at the cusp of Modernity, had become an inherent part of municipal responsibilities in the Italian city-states (*comuni)*.[363] This was a time, as noted in Chapter 1, when the first institutions based on *risk* calculations emerged, such as banks and insurance. Alÿs's case study was stray dogs, how they were managed and progressively expelled from the city walls as a part of this new process.[364] Landing in Mexico, Alÿs experienced just the opposite of this: the city was not just in complete chaos, but was the theatre for what in Mexican jargon is called *valemadrismo*, "the art of making do". This home-grown way of living has to do with improvisation and finding ways to survive, to live "by your wits". It is an attitude, an ability to bounce-back against the adversities of life, a mix of resilience and boastful cockiness.[365] It is a national idiom that does not have a proper translation into English. Under the rule of *valemadrismo*, accidents cannot be avoided but only embraced and turned into stratagems for survival. In an interview with Corinne Diserens, Alÿs, who in the meantime had made a film about Negrito (one of the city's stray dogs), declared:

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[362] Cuauhtémoc Medina, "Fable Power," in *Francis* Alÿs*,* ed. Cuauhtémoc Medina, Jean Fisher, and Russell Ferguson (London: Phaidon, 2007).

[363] Alÿs discusses how this pivotal moment also turned him away from architecture as an urban project. See David Toop, "Sounds Passing through Circumstances," in *Francis Alÿs: Seven Walks. London. 2004*- 5, ed. Artangel, (London: Artangel 2005), 68.

[364] The expulsion of dogs "run in tandem with the first sign of the emergent modern era: the development of 'rational' scientific discourse, the colonisation of the New World, the decay of medieval faith, the first notions of hygiene, and the development of perspective as a means to convey a mathematical and spatial world view". Francis Alÿs and Cuauhtémoc Medina (interview) "Entries." In *Francis* Alÿs*: A Story of Deception,* eds. Mark Godfrey, Klaus Biesenbach and Kerryn Greenberg, (London: Tate 2010),61.

[365] Please note the original meaning of "resilience" refers to a physical property: "the ability of a substance to return to its usual shape after being bent, stretched, or pressed. Definition of "resilience", *Cambridge Advanced Learner's Dictionary & Thesaurus* (Cambridge: Cambridge University Press). Accessed 19 December 2019, https://dictionary.cambridge.org/dictionary/english/resilience.

FIGURE 107 FRANCIS ALŸS *UNTITLED*, 2013. OIL AND PENCIL ON CANVAS AND WOOD © FRANCIS ALŸS AND DAVID ZWIRNER

> I used him as a hero who could personalize this local virtue of "valemadrismo", which is the capacity to accommodate oneself to "la mala fortuna" to bad luck, and even more, to actually turn one's misfortune into an advantage.[366]

The cultural meanings of the dog in this body of works, gains a further relevance in relation to how the notion of safety and hygiene have become key aspects of the narratives of colonial

[366] Francis Alÿs, Cuauhtémoc Medina, and Corinne Diserens. *Diez Cuadras Alrededor Del Estudio =: Walking Distance from the Studio*, (México: Antiguo Colegio de San Ildefonso, 2006),112.

presumed civilization across the world. The parallel history of dogs and cats in the streets becomes a tale of coercive moral impositions on the habits and lifestyles of cultures where risk is experienced in totally different ways; where preoccupations of short-term survival take centre stage against nonsensical and distant propaganda. Alÿs's images, in a sense, celebrate *valemadrismo,* as much as safety communication and risk attempt to repress it.

This is all the more evident in Alÿs's body of work related to Ciudad Juarez, a city situated at the crossroads of illegal emigration and the treacherous violence of narcotrafficking. It is notorious throughout Mexico for being one of the most dangerous cities in the country and as such holds a special place in the collective imagination, due to thousands of unresolved femicides.

In Juarez, Alÿs filmed children playing shooting in derelict areas. The same places where most of the gang shootings took place (attested by the numerous bullet holes on the walls). In *Children's Game 15 / Espejos (*2013*),* their innocuous game is vailed by danger and transgression as they play using pieces of found broken mirror. Most probably forbidden by their family to play in such dangerous areas, their unruliness gives an edge to the film as it immortalises their transgression. How should one perceive safety when watching this footage?

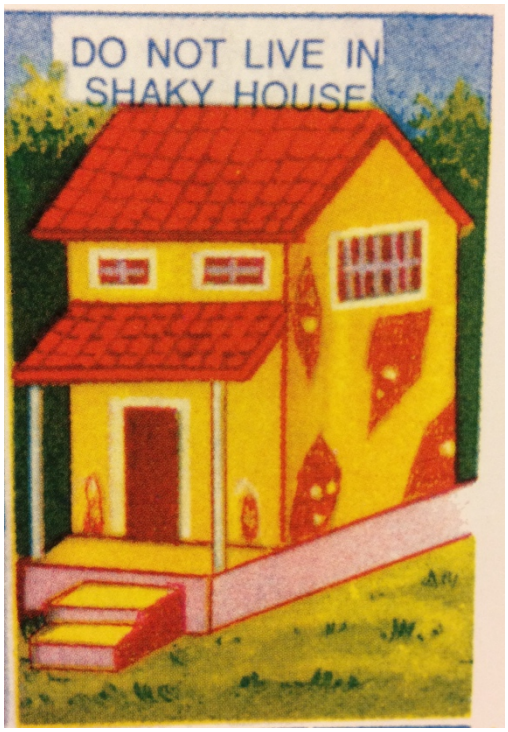

FIGURE 108 DETAIL FROM THE CHART *SAFETY FIRST AND FIRST AID*, AUTHOR AND DATE UNKNOWN), INDIAN SCHOOL CHART, FROM *AN IDEAL BOY* BY SIRISH RAO ET ALL.

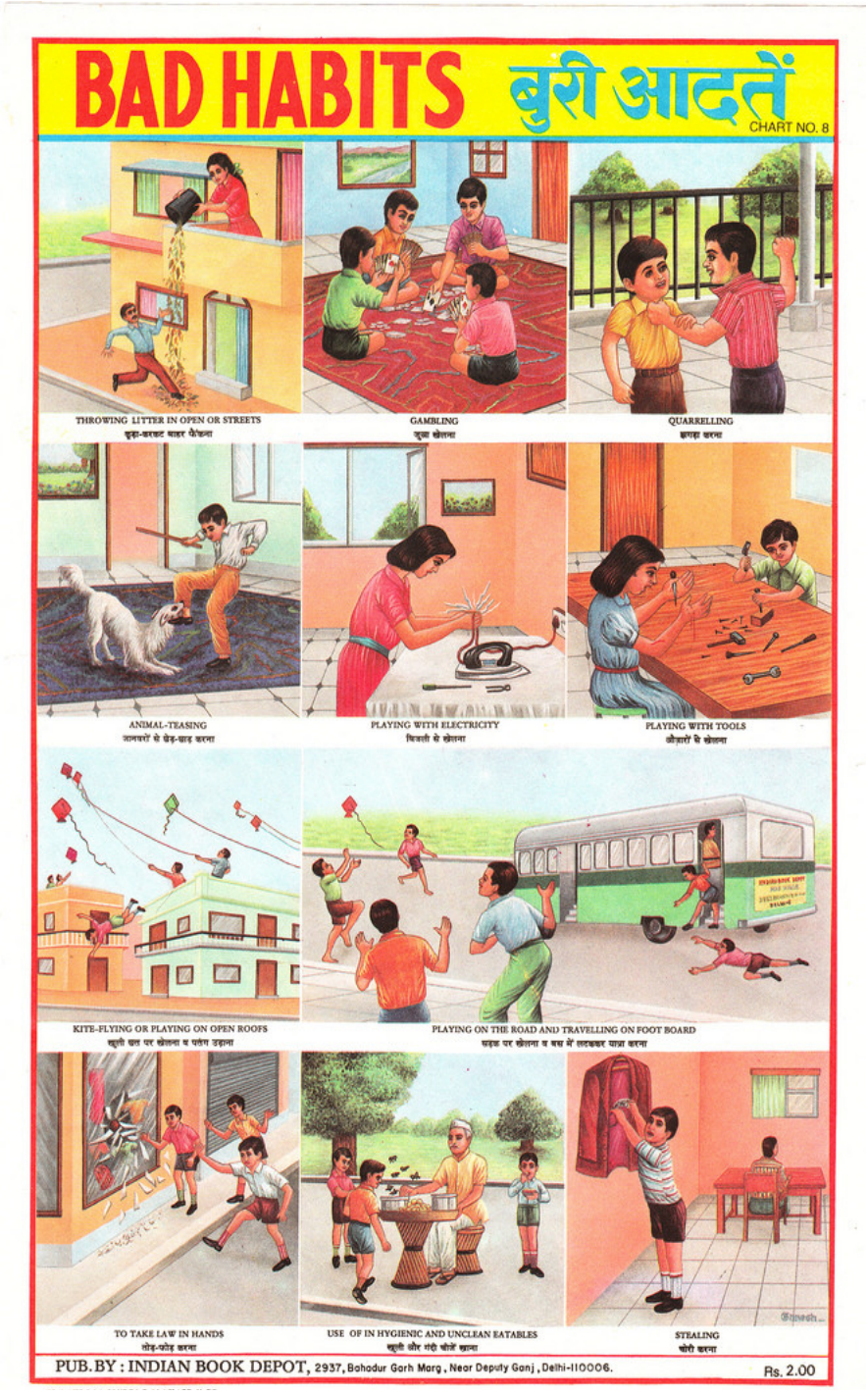

FIGURE 109 *BAD HABITS*. INDIAN SCHOOL CHART (AUTHOR AND DATE UNKNOWN).

Considering the cautionary imagery of children posters, may once again provide some answers. The Indian school chart *Bad Habits* (Figure 109), provides a taxonomy of actions that children should not do: playing on the road, flying kites from terraces, teasing dogs,

playing with tools.[367] This is an imagery that we are already familiar with: we recognise the table of *The Magician* (Figure 97), the dog of *The Foolish Man* (Figure 101), as well as illustrations for road safety campaigns, and all sort of hygiene advert. In one table of the chart, flies are oversized to allow children to spot dangers. In another chart (Figure 108), living in a shack house is included among the things that good children should not do. This kind of imagery was introduced in India by the British Colonizers, in particular from the evangelical priests who were in charge of Indian public schooling. Dangerous behaviours are in these charts embedded with a moral significance, but the urban environment they depict is far from the reality Indian children experienced at the time, where the street was the only place where they could play and they certainly did not live in multi-storeyed blocks.[368]

The rough realism of Alÿs's *Children Games/15* gives these images a meaningful counterpart: no matter how safe one should endeavour to be, reality often compels us to take risks out of necessity. As it often happens, a painting has followed the film, (Figure 107). Here the children play hide and seek behind the corners of tall buildings: in the centre a street zig zags like a river within a steep canyon, until the last building covers the horizon, the sky is also invisible. Holding mirrors in their hands, the children capture the light and use it to blind their adversaries, the mirrors are innocuous weapons, but also tools for liberation through play. Or they may just well be rehearsing for the real war, the one that they may face one day when, by choice or by chance, will find themselves confronting real weapons.

Part of the *Ciudad Juarez Project* is also a painting from Alÿs's ongoing series *Lynchings* (Figure 110): the artist's rendition of murders and tragic events reported in Mexican newspapers. Far from the threatening sensationalism of the media, the work shows how real events can deceptively be transposed in paintings to sublimate their tragic quality. Glowing from a warm palette of orange, yellow and earthy colours, a crowd of identical individuals (may be a reiteration of the same, smartly suited subject in the *Liar* series) forms a symmetric circle around a burning car. The crime scene is depicted as an event of contemplation, a moment of silence, a bonfire. It may be instructive to compare this work with Edward and Nancy Kienholz's *Five Car Stud* (1969–72), another artistic take on a murderous event on a social scale. In this seminal installation, a racist lynching (a not-specified yet probable event)

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[367] These posters have now become a popular iconography also in the West since their appearance of websites such as ebay,

[368] Sirish Rao, Gita Wolf, and Va Kītā, *An Ideal Boy: Charts from India*. (Stockport, England: Dewi Lewis Publications, 2001).

is orchestrated as a stage that is both threatening and uncomfortable for the viewer to experience. Lit only by the lights of four cars, the crime scene is presented in all its grotesque, fearsome violence by combining real objects, circus props and the dummies the artist made. Originally shown in a circus tent of 1972 Los Angeles, the work may have protested the resilience of violent racism in the post-civil rights movement America. By confronting the viewer's position as a voyeur, however, it also suggests some consideration on the ethics of the representation of violence in the media (and in an artistic context). Moving from similar considerations, Alÿs's work leads to opposite formal solutions.

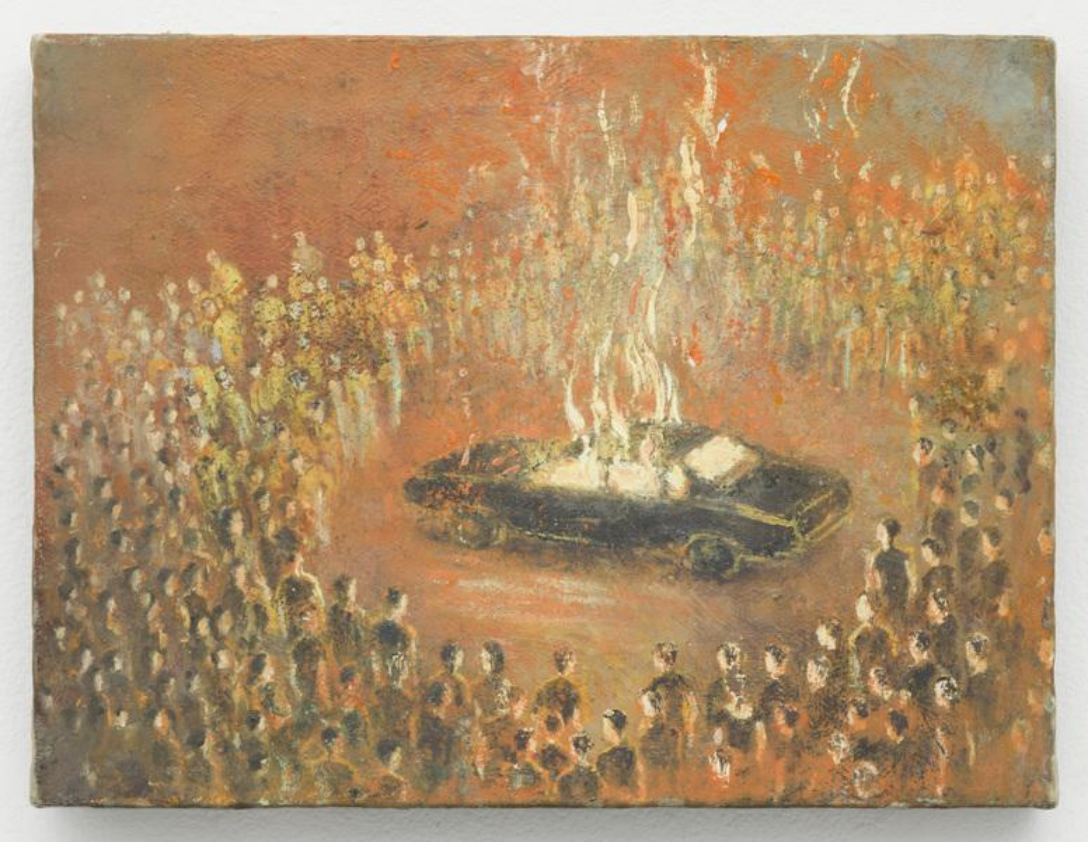

FIGURE 110 *LINCHADOS (LYNCHINGS)*, 2010. OIL ON CANVAS ON WOOD. © DAVID ZWIRNER.

The painting lacks of sensationalism and embraces the representational style of 19th Century accounts of crime news - a la José Guadalupe Posada Aguilar (1852-1913), but the connection with the real event has been irreversibly lost. Distant from the shock and voyeurism of Mexican newspapers' gory imagery, this painting is designed to leave us puzzled. Frustrating our attempts to understand and prevent the event, it represents it as a random combination of circumstances and any attempt to archive and document it as phenomena (of nothing else but itself) becomes a self-deceptive operation.

On observing the iterations of Alÿs's characters — the gentlemen, dogs and children pictured in all sorts of situations — I am reminded of the "stranger" and "unwary" protagonist of *The Frauds of London* (see Chapter 1). This Victorian guide to all possible misadventures that the British capital offered to its visitors, warned the country man against the chaos and lack of control of the city. As Alÿs's favourite characters return from painting to performance to video in slight variations of the same theme, they become an antithesis, or nemesis, of the gentlemen visiting London, Mexico City, or any other unruly place.

6.4 Conclusion

This chapter has discussed the relation between superstition and risk, control and irreverence, and safety and danger through Francis Alÿs's engagement with the phenomenology of the accident. Reproduced in quasi-identical paintings, performances and animations, Alÿs's actions cite the instructional language of safety communication whilst subverting their message. His work equally evokes slapstick, the iconography of popular *ex votos* and the chronicles of real events from the news. These motifs belong to a repertoire of clichés that is both universal and generic, but in the artist's practice, they acquire a strange symmetry with his surroundings and his reality. Alÿs's art provides an aesthetic space for engaging with the complex dynamics of our risk universe. His art is an anti-heroic homage to risk taking that demystifies the modern-world narratives of safety promotion, to show us other ways of existence and resilience. It becomes an allegory of the very predicament of living with risk and being warned in an uncertain world.

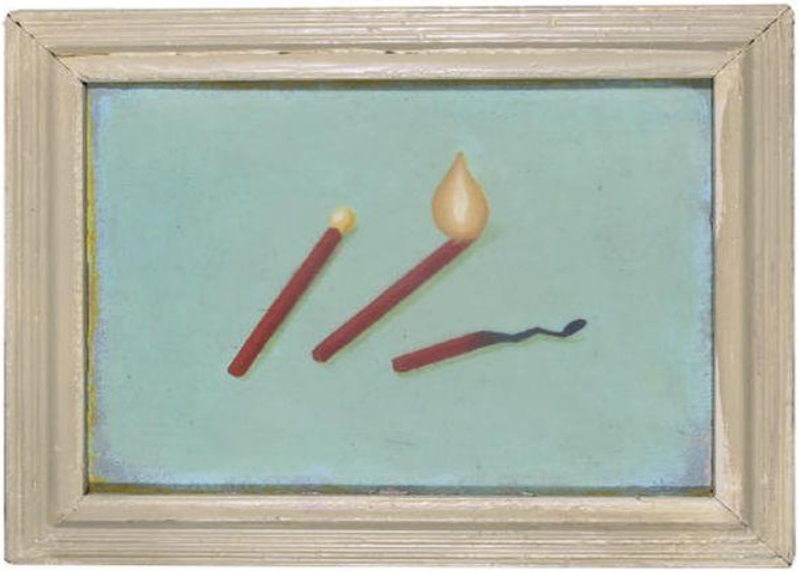

FIGURE 111 FRANCIS ALŸS, *UNTITLED,* 1995. OIL AND ENCAUSTIC ON PANEL © FRANCIS ALŸS AND DAVID ZWIRNER

7 CHAPTER. Rehearsing Disasters

FIGURE 112 SIMON FAITHFULL *EZY1899: RE-ENACTMENT FOR A FUTURE SCENARIO*, HD VIDEO, 12MIN, 2012.

7.1 Introduction

I have been arguing in this dissertation that the diagnosis of risk always inherits a form of anticipation. The context for this chapter is the diversity of ways in which possible *events* are envisioned, re-constructed, and anticipated through performance or role play. These actions, which I call "pre-enactments", blur reality with fiction to present future events as already happening. In the first part of this chapter I examine the phenomenology of pre-enactments through various examples. The purpose of pre-enactments, I argue, is to construct memories of events that are probable, so participants can build resilience for the future. To borrow an artistic term, they operate through "predictive memorialisation".[369] The second part of this chapter asks how pre-enactments hijack the experiences and histories of real people. It does so by discussing, among other examples, a work of video art by Rosa Barba, *The Empirical Effect*. Partly staged, but using real-life footage, the film confronts the lives of those living in the vicinity of Vesuvius, near Naples, Italy, focusing on how they

[369] I came across the expression "predictive memorialisation" in an article by art critic Ian White about Rosa Barba. 'Is the implication of Rosa Barba's 2007 "round table" that this conversation was at once already archaeological, cultural dereliction its subject, modernism itself defined as a kind of predictive memorialisation?". Ian White, "Rosa Barba", *Camera Austria* 101 (2008), 21-26. I appropriated the expression throughout this dissertation, not to describe modernism, but the way risk anticipatory techniques operate.

cope with the cyclical nature of the volcano's activity. In light of this art-work I argue that pre-enactments are practices that both exercise and exorcise risk.

7.2 Anticipatory Actions and Predictive Memorialization

"How can we live on the volcano of civilisation without deliberately forgetting about it (…)?", famously asked sociologist Ulrich Beck in his influential book *Risikogesellschaft.*[370] It was 1986 and his metaphor captured an emblematic historical context. Chernobyl catastrophic explosion had materialised the fears of nuclear disaster that have been building up since Hiroshima and Nagasaki. For the previous thirty years, Cold War civil protection initiatives and nuclear tests in the desert had contributed to internalise the trauma of WWII atrocities by reiterating it in the form of a future possibility.[371] Then, the awaiting disaster happened when another nuclear explosion occurred in Chernobyl (1983), — it was the re-enactment of what had been rehearsed in the collective imagination. "The unprecedented, once it has appeared, may become a precedent for the future", wrote Hannah Arendt, and every disaster that follows becomes the fulfilment of a "sinister potentiality".[372] If, for Arendt, every disaster sends ghostly messages to the future and produces the possibility of its own re-enactment, the field of risk management makes a large use of this possibility to re-enact. Under the framework of risk, the ghostly return of traumas becomes a management tool that inscribes every disaster into a cycle of probability. It is for this reason that Beck's metaphor of the volcano perfectly encapsulates living in a risk society: the volcano reminding us of both past and future eruptions.

Today's risk anticipatory techniques — including drills, exercises and scenarios — exist in this intermediate temporal suspension and are often orchestrated with effects comparable to immersive theatre performances.[373] Narratives, drama, scenario design, role-play, and virtual reality are all increasingly being used in drills that anticipate probable events, making possible the rehearsal of either promised or threatened futures for us to be adequately prepared. Those who take greater risks in their professional life, such us in the military,

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[370] Ulrich Beck, *Risk Society: Towards a New Modernity*, trans. Mark Ritter, (New Delhi: Sage, 1992),76. First Ed. as *Risikogesellschaft,* Frankfurt, 1986.
[371] Tracy Davis, *Stages of Emergency: Cold War Nuclear Civil Defense*, (Durham, NC: Duke University Press, 2007).
[372] Hannah Arendt, *Eichmann in Jerusalem* (New York: Penguin, 1994), 273.
[373] Ben Anderson, "Preemption, precaution, preparedness: Anticipatory action and future geographies", *Progress in Human Geography,* 34.6(2010), 777-798. Accessed 22 April 2018, https://journals.sagepub.com/doi/10.1177/0309132510362600.

emergency services, and even in medicine, are trained and advised through repeated and controlled performances. Following general Von Clauiswisz footsteps, they prepare for the "fog of war", the unpredictable, with physical and emotional training that increase their ability to respond to unexpected emergencies.[374] This re-enacting of the past becomes an anticipating and pre-empting tool, it becomes a pre-enactment.

Pre-enactments are performative versions of our threatened and promised futures, they are actions that drill or train us to encounter the worst. Embodied and sometimes emotional, pre-enactments transpose the past into an imaginary future to be performed and choreographed in drills and simulations. One could understand pre-enactments as re-enactments of events that happened somewhere at some point and are likely to happen again. Historical re-enactments usually combine staging techniques and collective participation "to bring history to life". By performing the historical past as though it was a present time condition, they facilitate (or claim to facilitate) the preservation of cultural identities, or even perform healing rituals following traumatic historical events.[375] Re-enactments do not just re-live the past, they re-stage past events as a means to interrogate the present and the future.[376] Similarly, in pre-enactments, statistical data and witness accounts contribute to the design of *probable* disaster scenarios, so the past is actively used to produce knowledge of the future. Moreover, just like re-enactments, pre-enactments can also be the opportunities for commemorating traumatic experiences through immersion and embodied participation.

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[374] Thomas Waldman, "Shadows of Uncertainty: Clausewitz's Timeless Analysis of Chance in War", *Defence Studies*, 10.3(2010), 336-368. Accessed 20 March 2018, https://www.tandfonline.com/doi/abs/10.1080/14702436.2010.503678.
[375] Iain McCalman, *Historical Reenactment: from Realism to the Affective Turn*, (Springer, 2010). For re-enactment and trauma see Sandra L. Bloom, "Every time history repeats itself, the price goes up: The social reenactment of trauma", *Sexual Addiction & Compulsivity: The Journal of Treatment and Prevention* 3.3 (1996): 161-194.
[376] Rebecca Schneider, *Performing Remains: Art and War in Times of Theatrical Reenactment,* (London: Routledge, 2011).

FIGURE 113 MEMBERS OF STAFF MEET AT ASSEMBLY POINT DURING AN EVACUATION EXERCISE AT THE BALI BENOA RESORT, DENPASAR, BADUNG, INDONESIA, APRIL 2017 PHOTO: FRANCESCA CAVALLO

In Bali, Indonesia, for example, evacuation exercises in tourist resorts take place simultaneously on the 26th of every month, as reminders of the 2004 tsunami, that happened on the 26th of December, and is the deadliest Tsunamis ever recorded in the Indian Ocean (Figure 113). Over 230,000 people across14 countries died. As the masses of tourists are told to ignore the alarm, the Indonesians' monthly evacuation drills test the region's emergency response capacity, perform safety for the tourists and in a certain way address the past trauma. At the same time, the deadly wave has been reproduced as a stylised pictogram on all the signs used for the evacuation routes, all throughout the beaches. The past has become a lesson to be learned, a performative action and an integral feature of the built environment.

Pre-enactments, however, are not just shaped by past experiences or objective data, but construct fictionalised narratives.[377] In large scale fire drills, for example, experts choreograph the possible evacuation of the occupants from the buildings by inviting them to perform *as though* there were a real fire blazing. The fictionalised dimension gives them a relative degree of safety; during such drills fire alarms are tested, the evacuation time measured and, more importantly, those involved become more resilient without being in

[377] Peter Lamarque,"Narrative and Invention: The Limits of Fictionality", in: Cristopher Nash, ed. *Narrative in Culture – The uses of Storytelling in the Sciences, Philosophy, and Literature*, (New York: Routledge 1994), 131-153.

danger.[378] In this sense, a fire drill is akin to a theatre rehearsal, where actors can make mistakes without exposing the performance to a real audience. Rehearsing for theatre as much as for emergencies involves diminished degrees of risk. Yet, whilst rehearsals anticipate a play whose nature is clearly fictional or staged, pre-enacting emergencies anticipates something more widely distributed and unpredictable. Events that can happen or perhaps have happened, but we don't know where and when. Just like other risk anticipatory technologies, then, pre-enactments introduce the "predictive memorialisation" of the present: new memories are induced so that they can be repeated and eventually become behaviours or discipline. As present and future are merged through anticipation, staging techniques are deployed for participants to experience the reality of possible disasters.

7.3 The Politics of Pre-enacting Risk

Through pre-enactments the foreseeable future appears in the present as a performance. I shall now discuss the phenomenology and politics of pre-enactments, by scrutinizing how their staging *affects* the politics and livelihood of real people. The *war-gaming* field is one such example, where the use of theatre to influence reality is most openly formulated. During the decade long occupation of Iraq, the U.S Military built realistic models of Iraqi villages, not too far from Hollywood, in the National Training Center at Fort Irwin in the Mojave Desert. As theatre historian Scott Magelssen tells us, soldiers were trained for war by being immersed in the "reality" of the Iraqi conflict, which had been constructed with the help of Hollywood set makers, professional actors and costume designers. Soldiers were confronted with all the challenges of the Iraqi war: dry climate, people speaking only in Arabic, chemical weapons, cars exploding and suicide bombers. Even "real" Iraqi immigrants were employed to simulate the life of a village under American occupation. In some cases, situations that occurred in real life were repurposed so that the troops could learn from their

[378] It's worth quoting here theatre actress and playwriter, Deb Margolin: "Acting is an emergency, and in an emergency, you do whatever works. What you do in a fire drill may bear no resemblance to what you do in an actual fire, but your odds of survival are greatly improved by a past enactment of the drills." Deb Margolin, "Mining My Own Business: Paths between Text and Self", in David Krasner, ed., *Method Acting Reconsidered: Theory, Practice, Future*, (New York: St. Martin's Press, 2000), 127-134.

own errors. War casualties were re-enacted thanks to the veterans' experiences, and *pre-enacted* for the inexperienced soldiers.

The simulation exercises in the Mojave Desert, aptly nick named *The Sand Box*, featured a large proportion of dramatization: they were conceived as *free play* where major and minor events were strung together as threads designed by scenario writers. With little information about what would happen during the day, the soldiers were required to take on the role-play and learn to improvise. There were, however some clear and defined rules: they had to gain the confidence of the village folk and could also be "killed", which would mean they missed-out on the rest of the day's scenarios. Comparing these immersive performances to Augusto Boal's Forum Theatre, Maglessen writes,

> While political theatre hopes its messages will be explicitly manifested in the world outside the simulation, theatre immersion in the Sand Box is clearly one example where there is no question about theatre having an impact on reality.

The distinction between simulation and real experience is deliberately blurred in these exercises: in the simulation, soldiers learn how to deal with real life situations. Beyond the simulation they will re-enact the pre-enacted drama performed a few months earlier. Getting to the real desert in Iraq, talking with residents, stopping and searching people, watching cars exploding would seem like a continuous *déjà vu* to American soldiers. They would have learned the *risks* of war through performing them, a proper application of the "train-as-you-fight, fight as you train" slogan.[379] Moreover, as these pre-enactments physically prepared participants for the hardships of war, their staged realism was designed to elicit (and manage) emotions. [380]

[379] Philippe Wodka-Gallien, "Train As You Fight, Fight As You Train-This month, JED profiles an integral part of NATO's EW training--the Multinational Aircrew Electronic Warfare Training Facility, or Polygone, where Allied," *Journal of Electronic Defense,* 24.6 (2001): 63-67.
[380] This emotional aspect was the subject of Haron Farocki's film, *Serious Games: Immersion III* , exhibited as part of the *Risk* exhibition (see Chapter 2). In this film a soldier engages with VR to *simulate* the *re-enactment* of a traumatic combat experience. For discussion about this work see Erika Balsom, "Moving bodies: captured life in the late works of Harun Farocki", *Journal of Visual Culture* 18.3 (2019): 358-377.

FIGURE 114 VOLUNTEERS TAKE PART IN THE TRAFFORD CENTRE TERROR DRILL ON MAY 13 2016. PHOTOGRAPH: GETTY IMAGES,

Similar methods of staged realism were used in military training during WWII. One such method was the "battle inoculation", employing smoke and recorded explosions to turn new recruits (normal citizens) into fearless fighters.[381] According to the psychology dictionary,

> Battle inoculation is the process of attempting to desensitise soldiers or personnel who might find themselves in a battle situation, so they are not affected by shock if and when the time comes. Research has shown the more realistic the practice situation and time spent in situations which emulate the real environment prepare the individual by a greater degree than less accurate practice situations. [382]

As historian Johanna Burke writes, no matter if these techniques might have presented a distorted version of reality, battle inoculation was a powerful ideological tool. [383] Through a mix of gruesome realism and performed courage, soldiers experienced fear and reassurance, supposedly becoming stronger and better fighters. Similarly, in the Sand Box, soldiers train to *accept* the risks that they may face, regardless of whether they are prepared for them. The rehearsed scenario is a way to create consensus (or divisions), and not just a preparedness technique. It re-distributes emotions by fictionalising reality.

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[381] Jonathan Fennell, *Combat and Morale in the North African Campaign: The Eighth Army and the Path to El Alamein*, (Cambridge: Cambridge University Press, 2011), 259.
[382] Pam M.S Nugent, "Battle Inoculation", in *PsychologyDictionary.org*, 7 April, 2013. Accessed 5 April 2018, https://psychologydictionary.org/battle-inoculation-2/.
[383] Joanna Bourke, "Psychiatry, Hate Training, and the Second World War", *Journal of Social History,* 5.1(2018), 101-120. Accessed 12 July 2018, https://doi.org/10.1093/jsh/shx034.

This is even more true today, when, highly staged anticipatory actions have become commonplace in today's preparedness, capitalising on the same principles of battle inoculation. In the hope of making their countries safer, governments introduce drills in response to their identified threats and emergencies. These vary from school shooting drills in the US, to antiterrorist drills in London. What is remarkable about these events as opposed to the above example, is that these staged drills involve large numbers of civilians who, alongside the emergency services, are "emotionally" trained (or "inoculated") for emergency situations. "Nothing works as effectively in dealing with real-world disasters as rehearsal," boasts *Crisis Cast*, a company founded by theatre actors, who coordinated a recent anti-terrorism exercise in a Manchester shopping centre (Figure 114).[384]

> We bring all of our experience creating highly credible, dramatic scenarios to bear preparing your people for the worst and equip them with the psychological and practical tools that will help them save lives and survive disaster.[385]

The exercise, involved the police, ambulance and fire services, special counter terrorism units, plus 800 volunteers and professional actors. An explosive device was detonated by a man dressed as a terrorist who shouted "Allahu Akbar", in front of the press who were invited to cover the event. Similar to war-gaming, staging techniques were employed to create shock, bolstering participants' *emotional* capabilities to respond quickly and rationally to unexpected threats.

Exercises such as the ones that I have just discussed are physical and emotional trainings where the logistics of emergency preparedness can be practised as well as fears can be cultivated and exorcised. Through rehearsal, repetition and the blurring of reality and fiction, participants in pre-enactments learn both to exercise and exorcise their risk awareness. As sociologist Erving Goffman pointed out, in theatre all participants make a collaborative effort towards maintaining an operative consensus, a precise definition of reality.[386] Similarly, in these anticipatory actions, all participants collaborate towards maintaining the definition of a reality as laden with risk, and act in accordance to that. Their "reality" however, is shaped by those who decide how "the future" will or should look like. Pre-enactments, reorient the public perception of risk according to what the authorities decide to be the recognisable enemy, in doing so, they can support (or undermine) policy and ideology.

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[384] Crisis Cast, "Solutions", *crisiscast.com*. Accessed 10 October 2017, https://crisiscast.com/solutions/. On the same page: "We really recommend good make up because it shocks – and that generates the sort of feelings we want trainers to be able to identify in simulations".
[385] Idem.
[386] Erving, Goffman. *The Presentation of Self in Everyday Life* (Garden City, NY: Doubleday, 1959).

FIGURE 115 A POLICE OFFICER TENDS TO A VOLUNTEER STUDENT WEARING MAKEUP TO SIMULATE INJURIES AS THEY PARTICIPATE IN A SCHOOL SHOOTING AND MASS EVACUATION DRILL AT LINCOLN MIDDLE SCHOOL MAY 22, 2007 IN ALAMEDA, CALIFORNIA. POLICE. (PHOTO BY JUSTIN SULLIVAN/GETTY IMAGES)

"Simulation drills are like state-sponsored performance art, where realism is replaced by theatre", writes photographer Nina Berman, who in her book *Homeland* has documented several drills involving U.S. civilians post 9/11. "I am very much interested in this identity and ambiguity between real and made up", she writes, "once you buy into something, everything else falls into place, creating a certainty that can be quite consuming".[387] Berman's photojournalistic pictures appear to be highly staged in their

[387] Nina Berman, *Homeland,* (London: Trolley, 2008).

depiction of a seriously dramatized reality and acquire a particularly poignant significance in light of the recent political climate and terrorist attacks.

Ambiguity and awkwardness are frequent features of pre-enactments' documentations. Photographs and videos realistically show the staged reality of pre-enactments, documenting fake events yet revealing the reality of the preventive action. Infused with an apocalyptic allure, funny or distressing, photographs of pre-enactments occupy a hybrid position in our imagination (Figure 115, Figure 116). Communicating a mix of excitement and distress, fear and reassurance, repulse and humour, they lead us to question the meaningfulness of such events and of this type of emphasis on the "event". Pre-enactments are real, yet de facto are "non-events", their simulated realism is trapped by the manufactured state of anticipation. Perhaps the fictionalised preventive action loses credibility in relation to today's sensitivity to threat, after many of the rehearsed scenarios have taken place. Gun shootings have been rehearsed many times in U.S. schools, yet what can rehearsal do against the threat represented by uncontrolled, institutionalised gun culture? Pre-enactments may not always be effective in dealing with real threats, but their insistence on the anticipation, repetition and iterability of disasters is an integral part of what constructs and produces risk in contemporary liberal democracies— a Governmentality that compensates the dissolution of the welfare state by cultivating risk as a way to discipline personal freedom. [388] In the liberal state, pre-enactments not just occur as a code of conduct for emergencies, but as an integral part of a disciplinary regime of pre-emption that, from safety regulations to predictive policing to pre-emptive war and modelling, is the product of a future-oriented infrastructure that finds its legitimation in the calculation of what is possible, and in the *realism* of such calculations.[389] Under this regime of pre-emption, health and safety, risk assessments, warning, drills, and ubiquitous insurance policies conspire towards the acceptance of risk analysis as the paradigm of our experience of the world. Exacerbated by disaster-angry media culture, "free-floating fear" and the loss of hope for a good life are just some well-discussed effects of this compulsive coexistence with the worst-case-scenario.[390]

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[388] Pat O'Malley, "Governmentality and Risk", in Jens O. Zinn (Ed.): *Social Theories of Risk and Uncertainty* (Oxford: Wiley-Blackwell 2009), 52-75. See also Graham Burkell, Colin Gordon and Peter Miller, *The Foucault Effect, Studies in Governmentality*, (London: Harvester Wheatsheaf, 1991). See also page 49, where I discuss Governmentality.

[389] Brian Massumi, "Potential politics and the primacy of pre-emption", in *Theory and Event* 10.2 (2007), DOI: 10.1353/tae.2007.0066.

[390] For the culture of fear see Frank Furedi, *Culture of fear*, (London: Continuum, 2006). For the loss of hope for a good life see Byung-Chul Han, and Erik Butler, *Psychopolitics: neoliberalism and new technologies of power*, (London: Verso 2017).

To this extent, the *realistic* (and practical) implications of pre-enactments beyond the staged scenario overcome the educational purpose of training for preparedness, assuming an analytical and operational function that feeds into disaster modelling and computer simulations. Pre-enactments simulate possible catastrophic events to test operational approaches so they can be implemented in the future: decisions are made and procedures authorised according to the data collected through the scenarios. More and more today, risks are quantified by computers where physical and social information is elaborated so disasters can be *enacted,* just like in pre-enactments, but more economically and safely. Insurance companies define their premiums according to these sophisticated simulations techniques and predictive analytics companies such as Palantir or Recorded Future use data in support of governmental agencies. [391]

Evolving from warfare to training to modelling technologies, and from state institutions to the security industry to any other business that requires evidence-based decision-making, the practice of pre-enacting is becoming modern-day fortune-telling — simulations, mathematical models and predictive analytics are being recruited, as I will discuss in the following chapters, in the current processes of 'colonization' of the future.

[391] These methods usually isolate the hazard in time and space, and measure its possible catastrophic effects, focusing on the damage a given event would provoke in the precise time and space of the simulation. Such simulations assume a crucial role in situations where risks cannot be predicted on the basis of previous experience, but their purposes remain analytical (e.g. to quantify risk) and they do not establish any contact with the real world and the population involved. See Stephen J Collier, "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization", in *Economy and Society* 3.2 (2008), 224-250.

FIGURE 116 POLICEMAN PRETENDS TO ADMINISTER AN ANAESTHETIC SHOT TO A ZOO STAFF MEMBER DRESSED AS TIGGER FROM WINNIE THE POOH DURING A DRILL PRACTICING FOR THE POSSIBILITY OF TIGERS ESCAPING AT CHENGDU ZOO IN CHENGDU, SICHUAN PROVINCE, CHINA, ON JUNE 2, 2013.

7.4 Pre-enacting Risk in the Arts: The Empirical Effect

As we have seen, staging and simulation techniques are used to fictionalise reality in order to "govern" risks. These fictionalisations do not only "prepare", but steer public opinion from one kind of risk to another. What happens, then, if artists appropriate per-enactments to construct other, differently staged, responses to the same risks? I will now discuss artworks that have confronted preparedness strategies and shown how people can or are coping with these threatened realities.

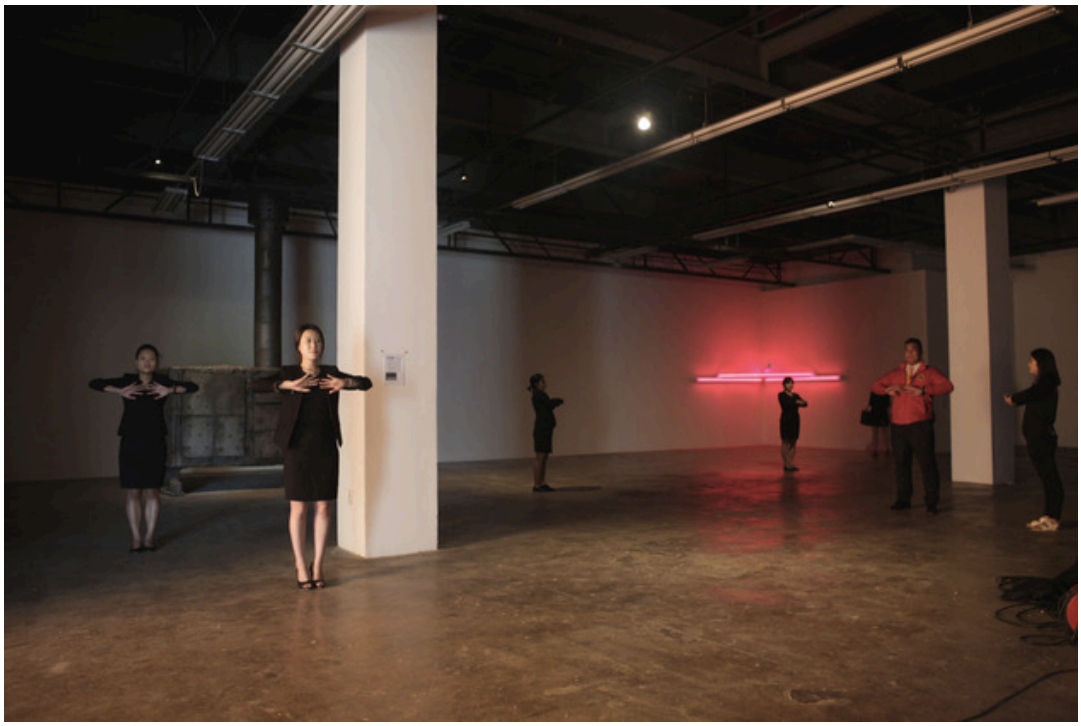

FIGURE 117 OKIN COLLECTIVE, *OPERATION - FOR SOMETHING BLACK AND HOT (2012),* PERFORMANCE, GWANGJU BIENNIAL, KOREA, 2012 © OKIN COLLECTIVE

EZY1899: Re-enactment for a Future Scenario (2012) (Figure 112), a film by Simon Faithfull, was shot at the Fire Training Centre of Manchester Airport, where a mock airplane is regularly set on fire for training purposes. The plane is the stage for a pseudo-apocalyptic scenario where the forces of fire and water compete under the eye of a disengaged silver-suited traveller. The film does not develop into an action movie but instead presents the returning exercises of the fire fighters as "stranded in time and space — a state where the adrenalin of emergency has dissipated into the tedium of the everyday".[392] Lucy Beech's *Stunt* (2011), follows the training of a stuntman who repeats an accident over and over again. The film re-enacts the failed stunt of performer Marc Cass in an episode of the 1990's television drama *Cracker*, which led to the demise of his career. Turned trainer, the stuntman is confronted with the endless repetition of his own actions recreated in safety testing scenarios and facilities. *Operation — For something black and hot* (2012) is a "training film" by the Korean Okin Collective, made in the aftermath of the Fukushima disaster and based on instructional manuals for various emergencies (Figure 117). The film was projected

[392] Simon Faithfull, "EZY1899, re-enactment for a future-scenario", *simonfaithfull.org,* accessed 15 May 2018, http://simonfaithfull.org/works/ezy1899-reenactment-for-a-future-scenario.

during the Gwangju Biennial in 2012 whilst gallery assistants periodically performed the same *quasi-Chi* exercises in the gallery with the help of the public. In their blog, the artists state that the work attempts "to raise self-defence power for protecting ourselves from the exposure of drastic dangers when government can't protect their people".[393]

Eradicated from their original purposes and transposed into an artistic realm, pre-enactments enter into retro-futuristic routines, haunting recurrences or therapeutic collective performances for the art public. Rather than a practical set of tools for safer futures, anticipation appears in these artworks as an existential dilemma, a *presence* we dwell into. Such an existential dimension is even more apparent if anticipatory actions and exercises are perceived through the ever-recurring cycles of human history. As in Rosa Barba's film, *The Empirical Effect*, to which I will return in the final part of this chapter.

The Empirical Effect (2010) (Figure 118) addresses the condition of people living close to Vesuvius near Naples, Italy. It follows the activities of a group of survivors from its last eruption in 1944. Produced in collaboration with the Vesuvius Observatory (the research laboratory in charge of monitoring the activity of the volcano), the film draws on different sources, including archival material and footage of real evacuations.[394] "*The Empirical Effect* charts the stories of a society whose lives are infused with an incredible tension, yet are paralyzed and docile", writes the artist and continues,

> I was interested in those who had survived the outbreak in 1944 and invited them to shoot with me a film using the old observatory as a stage for projecting memories but also for *staging* with all the apparatus that is used to protect them: seismographs, the sensitivity of animals etc.[395]

Not a documentary, nor entirely fictional, the film conveys an indistinct sense of reality. At the border between the historical and the mythical, the peculiar social conditions that exist in this area are transfigured so that their universal and perpetual resonances may emerge. As the survivors spend time in the place once used to protect them, the camera is a silent witness with little or zero interaction with the protagonists who engage in their activities, seemingly careless of the observer. Yet, circumstances are provoked by the artist and staged with a large margin of improvisation, as the survivors respond to an environment fully charged with

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[393] Okin Collective, "Operation for something black and hot", *okinokin.tumblr.com*, accessed 15 May 2018, http://okinokin.tumblr.com/post/12785365035/operation-for-something-black-and-hotpost.
[394] *Osservatorio Vesuvio*, part of the National Institute of Geophysics and Volcanology (INGV), is the scientific institution officially responsible for monitoring Mount Vesuvius. Founded in 1841, it is the oldest volcanic observatory in the world. In 1970, the research centre moved to Naples while the original site on Mount Vesuvius has been transformed into a museum.
[395] From an e-mail conversation with the artist, February 2011.

symbolic and metaphorical reminders: seismographs, maps, documents, even a flock of sheep suddenly entering the scene.

FIGURE 118 ROSA BARBA, *THE EMPIRICAL EFFECT*, 2010. 16 MM FILM TRANSFERRED TO VIDEO. STILL FROM VIDEO, © ROSA BARBA.

The survivors thus become the protagonists in an absurd and apparently inane choreography that mixes the everyday with the bizarre. Playing *as if* they were experts in forecasting eruptions, the survivors engage in a series of repetitive and compulsive tasks, such as continually mopping the floor or idly fidgeting with the equipment in the observatory. Within this framework, it is implied that they exchange words, but we are unable to hear them. Instead, we hear an abstract soundtrack where their muffled voices are confused with music and the noise of the seismographs, accentuating the distance in space and time that separates them from us. While some of them try to operate the machines, others are lying on the floor imagining that they can feel the movement of the earth through their bodies. One moment we see them scribbling on a geographical floor map of Italy; the next moment we see the same floor mopped clean. At times, they look outside the windows towards the gulf of Naples, at other times they dance on the panoramic terrace. The futility of such rituals further emphasises the predicament in which the protagonists find themselves: although surrounded by a variety of instruments, each with a specific and varied function, they are isolated from their usefulness, as they are unaware of how to operate any of the machinery.

Confronted with their incapacity to fathom the future through scientific instruments, they are left with the possibility of "empirically" experiencing, without despair, the fact that there are forces they cannot control. Knowing that they have survived once, they might know how

to cope with future disasters. Yet the viewer can never know if the traumas of the past have truly been exorcised by the protagonists, and whether or not the seemingly mundane and inane activities in which they engage at the observatory have a cathartic function, or rather were they contemplating their ultimate ineffectualness against the forces of nature. The individuality of the survivor is kept secret, and instead we see it as a generic, and indeed mythic, symbol of resilience.

The overwhelming sense of stillness that pervades these scenes is interrupted when images of an evacuation exercise come to shatter the contemplative dimension enveloping the survivors. In these shots, taken during a test evacuation in the summer of 2009, in which the artist herself took part, we see the inhabitants of the *Red Zone* running for safety during the largest simulation ever staged in the region. The footage of those moments, accompanied by the obsessive sound of the sirens, counterbalances the sense of stasis that dominates the rest of the film. These interruptions echo the volcanic explosions that disrupt the daily rituals of peoples' lives but also evoke a Greek tragedy, where the chorus enters the scene dancing to comment on the actions of the protagonists. Unlike a Greek tragedy, however, the film does not reach any climax or tragic pinnacle, resting as an internalised commentary of an action that is completely inaccessible to us by merely watching the film.

The drama of the volcanic explosion is thus absent in the film, but evoked through the bending of different temporalities; a perpetual state of anticipation and simultaneously a continuous aftermath where past and future collapse into each other. The archive images of Naples at the time of the 1944 eruption, the ones of the evacuation tests of 2009, shots of the survivors in the old observatory, interlaced without any discernible chronological narrative, are frozen into a perennial paralysis. They are present and absent at the same time. Thus, the survivors, or those who live in constant danger, the living city and the otherwise abandoned old observatory exist in the same time suspension, in a sort of "absence" of the present.

In *The Empirical Effect*, shared memories and traumas are recalled, wiped away, and transformed into a myth where the past is continually relived. The Vesuvius' emergency plan is then transposed into a historical loop, where the cyclical nature of the volcano's activity confronts inhabitants with a traumatic past that is also a potential future. Juxtaposed with the images of the survivors in their indolent state of waiting, the evacuation exercise ceases to be a pre-enactment and becomes a re-enactment of all the times people had to escape from an eruption of Mount Vesuvius. By accepting the notion that every action will repeat itself *ad infinitum*, a notion that from Vico to Nietzsche has been running through

Western civilization, any pre-enactment is somehow a re-enactment and vice versa.[396] What is just an evacuation exercise for those who experience it is also a *déjà vu* if we look at it from a distance, that is, through the eyes of the survivors' "empirical" experiences. Yet it seems that the survivors can only engage with the anticipated events in a mythical sense, pointing to the mythological nature of our collective attempts to be prepared. It is perhaps not history which repeats itself but the narratives we have constructed to interpret it. Even if cyclical, the eruption of a volcano is never the same because those who experienced it are never the same again. Yet, when, during the course of history, a traumatic event occurs, rupturing the accepted reality of the present, the value of such myths becomes evident as they enable us to draw upon our collective history and to gain a better understanding of the present.

It is generally believed that individuals who have undergone traumas and difficult situations are better equipped to cope with risks than those who have always isolated themselves from many ordinary activities in life; besides, they are also more likely to take risks.[397] Every poet or artist who has written about or painted Vesuvius has contributed to the construction of its mythological status. Yet, people living by Vesuvius have dealt with eruptions for thousands of years. After every eruption, people have resumed their lives in the same areas, despite the amount of damage the volcano has caused to their homes. Here, the perception of volcanic risk is based on ideas stratified through millennia of destructions, reconstructions, myths, anecdotes and evacuation strategies. While the Civil Protection guarantees that they will predict an eruption early enough as to be able to evacuate the area safely, the population has somehow metabolised the whole process of destruction and regeneration, and in many cases has chosen to live with it. Indeed, despite Vesuvius' reputation as a symbol of tyranny and ever-looming destruction, for the inhabitants of this region it is equally a symbol of fertility and prosperity. This is due to the fact that the very

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[396] Giambattista Vico, *The New Science of Giambattista Vico* (1744), trans. Thomas G. Bergin and Max H. Fisch, (Ithaca: Cornell University Press, 1948). (first published as *La Scienza Nuova*, Naples, 1744). Friedrich Nietzsche, *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs,* trans. Walter Kaufmann, (New York: Vintage Books, 1974) (first published as *Die fröhliche Wissenschaft*, Germany, 1882).

[397] In recent literature the correlation between post-traumatic disorders and risk taking behaviour has been further problematised. See Hashida Ben-Zur and Moshe Zeidner, "Threat to life and risk-taking behaviours: a review of empirical findings and explanatory models", *Personality and Social Psychology Review,* 13.2 (2009): 109-128. See also Matthew Tull, Nicole Weissand and Michael McDermott, "Post-Traumatic stress disorder and impulsive and risky behavior: Overview and discussion of potential mechanisms", *Comprehensive Guide to Post-Traumatic Stress Disorders*, (Springer International Publishing, 2016), 803-816; and Mareike Augsburger and Thomas Elbert, "When do traumatic experiences alter risk-taking behavior? A machine learning analysis of reports from refugees", *PLoS ONE,* 12.5 (2017), 1-12.

same lava that destroys the crops also nourishes the earth with minerals, which greatly increases the productivity of the land for future generations.

Far from mourning a cyclically renewed tragedy, the survivors embrace their condition with open arms. *The Empirical Effect* ends with a scene of them dancing on the terrace and singing a popular Neapolitan song. Their resilient liveliness is not just a laugh in the face of tragedy but comes from a profound awareness that the source of their predicament, with its tragedies and anxiety, also keeps them alive. *Post Fata Resurgo* (I return to life after misfortune) is displayed on the Coat-of-Arms of Torre del Greco, underneath a standing tower with a smoking Vesuvius in the background: the town, one of the closest to the Volcano crater, has been destroyed several times by the eruptions.

7.5 Conclusion

This chapter has presented an account of pre-enactment and its importance to coping with risk. In presenting various examples of disaster preparedness drills, I have defined *pre-enactment* as a risk management and prevention strategy, where a potential or perceived danger is rehearsed and a suitable response develops. Pre-enactments provoke experiences and create memories, guiding future behaviour through collective participation in simulated events. The event to take place is thus staged. In this sense, pre-enactments operate at the border between reality and fiction: creating fictionalised scenarios that toy with real fear, uncertainty, trust and reassurance to validate strategies of governance and shift the wider population's perceptions of risk. I have also shown artworks that confront real emergency strategies, proposing alternative ways of looking at risk than the ones presented by decision makers. The artists in question have borrowed strategies for fictionalising risk (through narrative or theatricality) and constructed other, differently staged, responses to the same risk.

The analysis of these artworks raises two further lines of questioning. First, risk management strategies are constructed and often perceived as narratives, as an organised sequence of events, set within an "ordering process".[398] In fact, there is a similarity between the ways institutions attempt to manage risks — by gathering and interpreting information about the past, present, and future, as well as by orchestrating pre-enactments as their dramatized form — and the ways in which artists "plot" their films and recruit their actors.

[398] Lamarque, 1994.

Both artists and institutions subjectivise reality (and risk) by ordering it according to more or less realistic sequences. In both cases, these sequences are performed via pre-enactment, though institutions have an educational or managerial intent, while artists have an artistic purpose. Moreover, pre-enactments are both collective and personal phenomena that each participant experiences differently. The subjectivities of the artists represented here are just some of many responses to (or narratives about) risk that individuals give themselves. From this point of view, pre-enactment is a territory where different individualities are combined, performed and negotiated.

The other line of questioning asks: what can we learn from these artworks? Do they illuminate an alternative relation to (or image of) our threatened and promised future? In a world dominated by obsessive concern about what will happen next, pre-enactments seem to be easy-to-use tools for coping with the uncertainties of the future. The future rehearsed may never happen, but it becomes real through pre-enactment. In this sense, it is more immanent then imminent, manifesting itself as the chaotic apparatus where past events, possible ones, real and fake news, warning messages, and protective suits make us experience a present constantly haunted by the worst-case scenario. Moreover, with their dramatized focus on "the event" and its repetition, pre-enacting risks just about jeopardise our very experience of the present tense. We live an everyday that is no longer dictated by our contingent needs, but by a rehearsed narrative that we often have not chosen, trapped as we are between present and future events. It is in our ability to discern and navigate through such narratives that we can reaffirm our "presence". Writing about Dürer's famous engraving *Melancholia* (1514), Giorgio Agamben wrote that it is in this "eternal present" that one can be rescued from being "perennially suspended in the inter world between old and new, past and future, into the very space in which he can take the original measure of dwelling in the present and recover each time the meaning of its actions". [399]

I shall conclude with a list of considerations about pre-enactment in the context of risk anticipation practices. In hopes that it might serve as a springboard for further research in the field, however before that, a short etymological conclusion for the word. In no sense a neologism, derived from the verb "to enact" — to act something out (hence the nouns *enactment* and *re-enactment*) —, "to pre-enact" means, literally, to enact beforehand. The term is used in fields as diverse as law, psychology, finance, ethnography, role-playing and art, and with a variety of meanings. In juridical language, a pre-enactment is a law while being discussed before it is approved; in finance, pre-enactment is used in the context of

[399] Giorgio Agamben, *The Man Without Content*, (Stanford: Stanford University Press, 1999), 114.

swap transactions;[400] in pedagogy, the term has been employed to describe the baby's act of opening its mouth in anticipation of the spoon;[401] and, in ethnological contexts, a shaman's performed death during rituals.[402]

- Whilst simulation is useful for developing and testing theory, pre-enactment is about creating some memory of future events to prepare people for dealing with difficult situations. Similar to the way battle inoculation works, pre-enactments are of emotional vaccines that inject fear to release antibodies.
- Pre-enactment is not a deliberate fiction. It is a performance of events perceived as real; thus, it implies involvement from participants and directors rather than a detachment associated with forms of representation (such as role-play).
- Pre-enactment is not scientific, in the sense of producing objective and reliable data (results will always be subject to variation); how its results actually affect peoples' behaviour in times of risk is an issue worth exploring.
- Pre-enactment dwells in the present, though this present is haunted by the past (pre-enactments are always designed using data from past experiences or tests). The present in which a pre-enactment dwells in is also haunted by the future (pre-enactments are a dramatization of what could happen).
- Pre-enactment is both dramatized and performative: it refers to a very precise segment of time and space and yet it implies the iterability of an action.
- Pre-enactment is always choreographed: it always presupposes a director and a performer, even when they are the same person.

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[400] Although there are a number of instances of "pre-enactment swaps", where "pre-enactment" suggests a preliminary operation, I was unable to find an actual definition of the term in a financial context.
[401] Francesca Morganti, Antonella Carassa and Giuseppe Riva, eds., *Enacting Intersubjectivity*, *(*Amsterdam: IOS Press 2008).
[402] Adolphus Elkin, *Aboriginal Men of High Degree*, *(*Brisbane: University of Queensland Press, 1977).

8 CHAPTER. Mapping Probabilities: Risk, Predictions and the Aesthetic of Large Numbers

8.1 Introduction

Graphs, diagrams, curves, maps and algorithms are increasingly regarded as tools for decision- making, from corporate organisational styles, to business investment, security and health. This chapter considers them as aesthetic practices, or more precisely as manifestations of the aesthetic of probability designed to both describe and control complex systems. I argue that it is through these visual organisations, made of quantitative data and through processes of time spatialisation, that the management of risk visualises probability.

I will begin by framing aspects of the current practice and scholarship around data-driven decision-making and the key role of visualisation. This reliance on tools to visualise probability, I maintain, is an unequivocally aesthetic feature of contemporary liberal societies, both their design and their art. I will therefore focus on time steps and pattern recognition as the aesthetic features of probability, which are essential to the data-driven diagnosis of risk. I will examine three key images, the *Lo Shu* diagram, John Auldjo's *Map of the Vesuvius* and a screen shot from *Bloomberg Terminal* as examples of how patterns have been visualised and used as aids for decisions at different times in history. I will regard them as 'diagnostic' images. And I will demonstrate that diagnostic images have been a constant in the development of predictive technologies as liberal societies have moved on from oracular predictions, towards the statistically informed methods of forecasting we use today. Drawing on literature from the history of science, technology and art I will assess the impact of diagnostic images beyond their philosophical and scientific implications, and show how they are inherently aesthetic practices. This 'aesthetic of probability', I sustain, implies a redistribution of the sensible experience of time and space according to the accumulation of data and the pre-emptive logics it serves. Pattern recognition, I will demonstrate, enables for time and space to be reorganised and reconceptualised through probability 'curves' in order to be incorporated in the 'visions' of today's organisational systems and decision-making processes. Discussing Andreas Gursky's acclaimed photographs of trading pits, I will analyse this aesthetic of probability and control by questioning its ability to 'diagnose' the volatility of the stock market.

8.2 The 'Risk Factor': from Pre-emptive Monitoring to Predictive Modelling

In the second chapter I explored the infancy of risk communication in correlation with the 'construction' of safety at the beginning of the 20th century. For safety to be achieved, the risks of modern life needed to be made visible and understandable by a mass population that was increasingly prone to accidents of all sort due to developments in technology. This required a collective effort towards a rather abstract idea of 'safety'. Public safety campaigns aimed at redistributing the aesthetic and sensible experience of daily life with a new awareness of what may potentially cause harm. If seeing risk required an effort of the imagination, tools were developed to remind people of what dangers were lurking ahead. As I have shown in Chapter 3, America's Met Life Insurance was among those who visually encouraged and economically benefitted from a new awareness of risk. From fear-mongering rhetoric to reassuring instructions, or the dissemination of booklets and survival manuals to pre-enactments, a set of techniques have emerged over the past century to assess and communicate risk. In the beginning they were based on older tropes and the creative intuitions of artists, designers, public relations managers or propaganda ministers (as I have shown in Chapter 2). From the second half of the 20th century, however, statistical and behavioural sciences became increasingly influential in the formation of the visual vocabulary of risk, and were seen as legitimate tools for its assessment and communication. This chapter focuses on such quantitative methods and their application in predictive technologies.

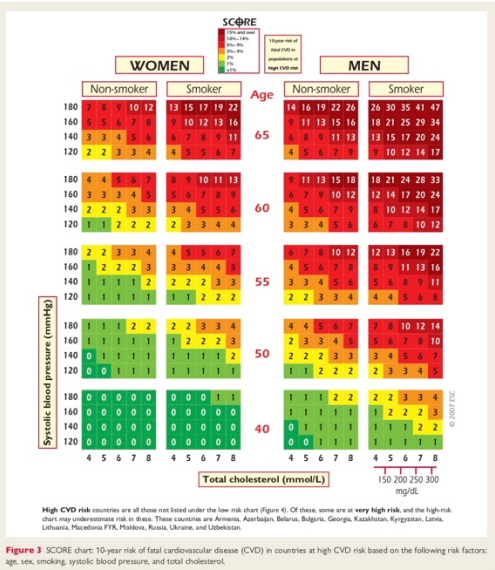

FIGURE 119 RISK SCORE CHART ADAPTED FROM THE EUROPEAN SOCIETY OF CARDIOLOGY, WITH PERMISSION OF OXFORD UNIVERSITY PRESS.

In the 1960s, the concept of the 'risk factor' revolutionised the field of preventive health. Coined by epidemiologist William Kannel to understand the causes of cardiovascular diseases, the risk factor is a mathematical formula that allows comparison and correlation of lifestyles with their effects to human health. It is today widely employed in the prevention of all sort of population-wide possible outcomes, from strokes to car accidents. Kannel was a researcher and later the director of the pioneering Framingham Heart Study, a research project that focussed on the population of a small town near Boston. Research in epidemiology at the time was able to estimate and prevent diseases outbreaks by isolating viruses, but not much could be done to prevent something such as heart disease.[403] In order to understand if heart disease was inevitable, the study only admitted healthy adults and monitored their progressive health conditions over time.[404] If a patient was at some point affected by a heart attack, all the data about their lifestyle and health was already available and scientists could explore possible correlations. "This type of study is a waiting game," Kannel explained in a 2006 interview. "You make measurements of the characteristics of the people you're following and then wait for them to get sick or not get sick".[405] Such pre-emptive monitoring over time led to the discovery that lifestyle changes such us quitting smoking, exercise or healthy eating reduce the risk of heart attacks, strokes and other cardiovascular diseases. The risk score is, today, a valued decision-making tool in the health sector (Figure 119).[406]

Kennel's methods for measuring risk were based on observing the behaviour of people (or data) *over time* in order to find revelatory patterns about their future. Data was collected at regular intervals, or 'time steps', and translated into numerical scores through mathematical formulas. Not only had Kennel applied a quantitative, statistically informed method of research, he had developed a form of predictive analysis based on pattern recognition. The progressive monitoring of how events unfold in one lifespan was revealed to be extremely useful in predicting illnesses: the risk score was, effectively, a very successful predictive technology that enabled the quantifying of risks by pre-emptively monitoring events over time and at an abstract population-wide level.

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[403] Known officially as the Framingham Risk Score. The term "risk factor" was first coined by former Framingham Heart Study Director, Dr William B. Kannel in a 1961 article. See: William B. Kannel et al., "Factors of risk in the development of coronary heart disease—six-year follow-up experience: the Framingham Study." *Annals of internal medicine* 55.1 (1961): 33–50.
[404] The study considered "healthy" those without history of stroke or cardiovascular diseases. Subjects were given extensive medical exams every two years.
[405] "Interview: Dr William Kannel", in *Take One Step, a PBS Health Campaign*. May 2006. Accessed March 15, 2019, http://www.pbs.org/wgbh/takeonestep/heart/interviews-kannel.html.
[406] Giuseppe Germano et al., "European Guidelines on cardiovascular disease prevention in clinical practice (version 2012)." *European Heart Journal* 33 (2012):1635–1701.

The principles of pre-emptive monitoring have become a staple in contemporary protocols as technological advancements have facilitated the processes of collecting 'big' data and developing more elaborate calculations. These methods are the effect of the widespread belief that pre-emptive monitoring, as in the case of the risk factor, reduces risk and enables better decisions. "When you are making decisions based on an excel sheet silo you have a tremendous capability to make a bad decision and not realizing", states a promotional video from SAS (Software Analytics Solutions), one of the most established global software analytics organisations. "Knowing where you are and where you need to go is necessary in solving big problems in an environment that grows with you", it continues.[407] This philosophy of decision making, is, effectively, a derivative of Project RAND's early post-war research into system theory in aid of military decision makers, which, according to David Jardini, was intended to "sharpen their judgment and provide the basis for more informed choices." As RAND's scope evolved, writes Jardini,

> Systems analysis served as the methodological basis for social policy planning and analysis across such disparate areas as urban decay, poverty, health care, education, and the efficient operation of municipal services such as police protection and fire-fighting.[408]

As organisations all over the world advocate for data-driven decisions to reduce business inefficiencies, it is not quite sure at whose (or what) expense such efficiency is achieved. If one thinks just a bit more about the issue, Kannel's pre-emptive monitoring of his patient's health to detect the signs of their possible illnesses is not that dissimilar to the current (controversial) automated facial recognition technologies in use all over the world. In the UK the police are allowed to access and store facial data from random people in public places for use in case they commit a crime.[409] The difference here is that Kannel's patients took part in his research voluntarily. "Society itself has become the biggest panopticon"

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[407] "Get to Know SAS® Visual Analytics." SAS Visual Analytics, accessed May 13, 2019, https://www.sas.com/en_gb/software/visual-analytics.html.

[408] Project RAND, now RAND corporation, was funded just after the Second World War to connect military planning with research. RAND stands for Research and Development. Quote from David R. Jardini, "Out of the blue yonder: The RAND Corporation's diversification into social welfare research, 1946-1968." (PhD diss., Carnegie-Mellon University, 1996), 13. See also Ron Bradfield, et all. "The origins and evolution of scenario techniques in long range business planning", *Futures* 37.8 (2005): 795-812.

[409] The first law case against the use of AFR in the UK by a private citizen was filed in May 2019. See Steven Morris, "Office worker launches UK's first police facial recognition legal action", *The Guardian* 21 May 2019, accessed May 21, 2019, https://www.theguardian.com/technology/2019/may/21/office-worker-launches-uks-first-police-facial-recognition-legal-action.

declared artist Shu Lea Cheang in a recent interview.[410] Representing Taiwan at the Venice Biennale, he took the Venetian Palazzo delle Prigioni (a former prison) as inspiration for his "sexopticon" films, about the life of people imprisoned for their sexual behaviour (Figure 121). Similarly, the artist and scholar Zac Blas translated the capturing techniques of surveillance systems into *bondage* masks that were worn during an endurance performance. The work is unequivocally titled *Face Cages* (2013–16) (Figure 120).

FIGURE 120 ZAC BLAS, *FACE CAGES*. DOCUMENTATION OF PERFORMANCE, 2013 © ZAC BLAS

As individuals supposedly find freedom from fate and fortune by designing their future through the accumulation of and interaction with large data that helps to prevent risk, they also find themselves in a passive condition wherein this data- driven future becomes their prison. As this was enough, the pattern-finding ability of 'reliable' algorithms decodes, prevents and influences human behaviour, suggesting what we might like to buy, how much exercise we should do, but also how much we should pay for a ticket, for insurance or we if can afford to borrow. Data mining and its use in predictive modelling, moreover, are today more than ever, integral parts of the infrastructure governing risk, as they enable us to calculate probabilities and generate knowledge about the future to identify possible threats (crime prevention and insurance are the most obvious examples). Describing and situating

[410] Zac Blas, "'Society Has Become the Biggest Panopticon': An Interview with Shu Lea Cheang." Frieze, 3 May 2019, accessed May 5, 2019, https://frieze.com/article/society-has-become-biggest-panopticon-interview-shu-lea-cheang.

human life into a grid of numerical sequences, they prescribe how trustworthy or dangerous we are according to our post code or bank account.

In her recent best seller, *Weapons of Math Destruction* (2016) mathematician and data analyst Cathy O'Neil argues that these predictive models can be as powerful (and dangerous) as weapons of *mass* destruction (WMD).[411] A hedge fund consultant turned Occupy Wall Street activist, O'Neil discusses issues such as the scoring systems employed in insurance or crime prevention. She explains that proxies often predict levels of crime, insurance premiums or offender's recidivism on the basis of postcodes, sex or education, thus penalising those living in deprived areas, which also happen to be of a particular racial background. These risk models, moreover, reduce opportunity for change, "assuming that the future would be no different from the past".[412] "The root of the trouble", she argues, it is not the use of mathematics to calculate probability, but "the modeler's choice of objectives".[413] "Toxic" metrics transfer human biases, prejudices and assumptions into algorithms that dictate various levels of risk without real objectivity. This lack of objectivity is, moreover, matched by little accountability as they work "behind the scenes": their thinking process is inaccessible to us. [414]

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[411] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, (London: Penguin, 2016).
[412] O'Neil, *Ibidem,* 41.
[413] O'Neil, *Ibidem*, 129.
[414] A number of scholars are proposing solutions to this issue. David Spiegelhalter suggests that algorithms should be "transparent, accessible, intelligible, useable and assessable". [David Spiegelhalter, "Be prepared to show your working!" (recorded lecture, Ian Turing Institute, London, January 23, 2019), https://www.youtube.com/watch?v=E12_F4xeOHw&list=PLuD_SqLtxSdVDcrCYIHayTL91DapuIHrO&index=3&t=0s]. See also Onora O'Neill's concept of 'intelligent openness' that modulates the relation between the model and the outside world so that they continuously learn and affect each other. [Onora O'Neill, "Drivers of change: making intelligent openness standard" in Boulton, Geoffrey, et al. "Science as an open enterprise." *The Royal Society: London, UK (2012),* 7, accessed May 25, 2019, https://royalsociety.org/~/media/Royal_Society_Content/policy/projects/sape/2012-06-20-SAOE.pdf.]

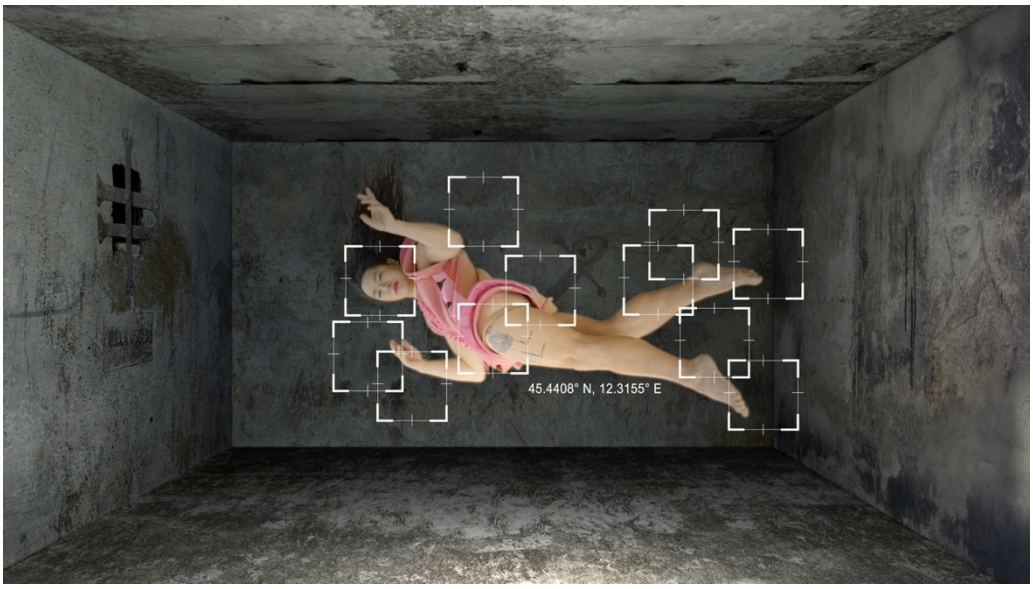

FIGURE 121 SHU LEA CHEANG, *CASANOVA X*, 2019. FILM STILL. VIDEO FROM THE FILM SERIES FOR INSTALLATION *3 x 3 x 6*; ENRICO WEY AS CASANOVA X © SHU LEA CHEANG AND TAIWAN PAVILION AT VENICE BIENNALE 2019.

This reliance on predictive modelling, is essentially an advanced and more dangerous development of Kennel's methods, where the practice of pre-emptive monitoring has evolved to greater pervasiveness and sophistication in the age of big data, producing ethical and operational challenges. Today, even the simplest algorithms can scan and reorganise knowledge from the universal to the personal, from macro systems to microorganism, and generate even more data as result of this process. Moreover, algorithms travel not just through space, but through time: that is, they can compare data that has been collected over time and use it for the assessment of risk (what may happen), just like in the early experiment that led to the formulation of the risk factor, but much more quickly. Pre-emptive *modelling* has thus become the natural evolution of pre-emptive *monitoring*.

8.3 The Challenges of Visualising Risk and a Case for Artistic Practice

As I have shown in the previous paragraphs, the uses and abuses of statistics, algorithms and computational predictive modelling are provoking intense intellectual debates. Attempting to tackle these issues from a pragmatic perspective, designers and analysts from the field of digital humanities are interrogating the possibilities for fair data visualisation and defining the criteria of how this may look. These include efforts (and concerns) with accurately visualising mathematical calculations in a way that reflects their elements of uncertainty and approximation, especially in light of the fact that we always assume "numbers don't lie". According to risk scholars, the issue is that data visualisation is inherently misleading because we, as humans, struggle to position ourselves within the laws of large numbers. Too often we take what is "probable" in the larger scheme of things as something certain or, on the opposite extreme, impossible to us, and this is how we measure our exposure to risks. This section discusses some of these ethical and operational issues, framing them as the challenges of visualising probability.

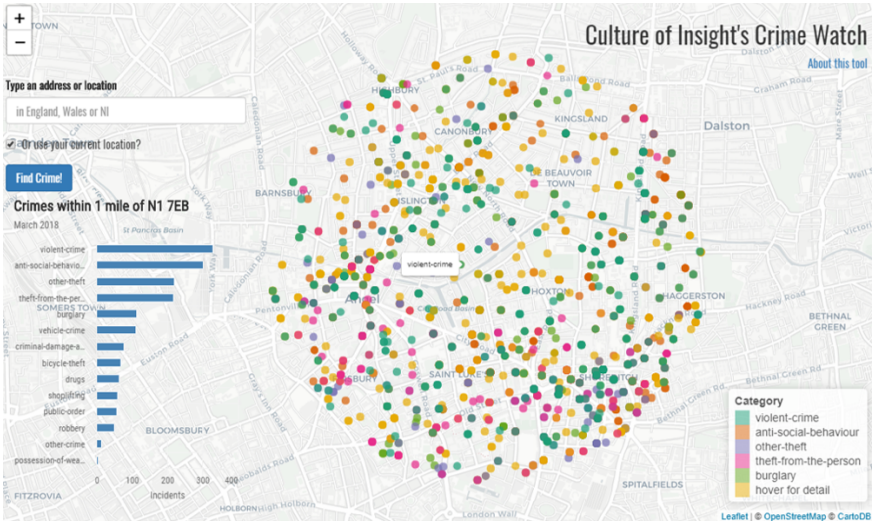

FIGURE 122 UK CRIME MAPPING TOOL DEVELOPED BY CULTURE OF INSIGHT WITH DATA RETRIEVED FROM UK POLICE DATA BASE, 2018 © CULTURE OF INSIGHT.

Labelled by its developers as an "example of how we can 'democratise' a data source", Figure 122 is taken from a recent app that enables users to retrieve data collected from the UK Police about crimes in the form of a map.[415] An older, similar example (Figure 123), provided by another Geographic Information Systems consultancy, shows a different

[415] Culture of Insight, "UK Crime Mapping Tool", accessed August 13, 2019, https://www.cultureofinsight.com/portfolio/crimewatch/.

visualisation style for similar data.[416] The first identifies specific spots and colour-coded crime types; in the second, criminality appears as an unspecified cloud hovering over the city threateningly. Designed to help citizens assess the safety of their neighbourhood by conveying statistical evidence, such maps may have little meaning or clarity for individuals in understanding how much in danger they face. Whilst statistical information is quite self-explanatory when showing large numbers from a distance, it does not make much sense for individuals to assess *their* own probability of falling victim to a crime. However, supposed evidence and the communicative relevance of numerical information is taken for granted in these examples.[417] They project past misfortunes into the future.

In previous decades, several scholars have raised similar concerns. When crime maps became ubiquitous on local police websites in the 2000s in the US, for example, Aurora Wallace wrote,

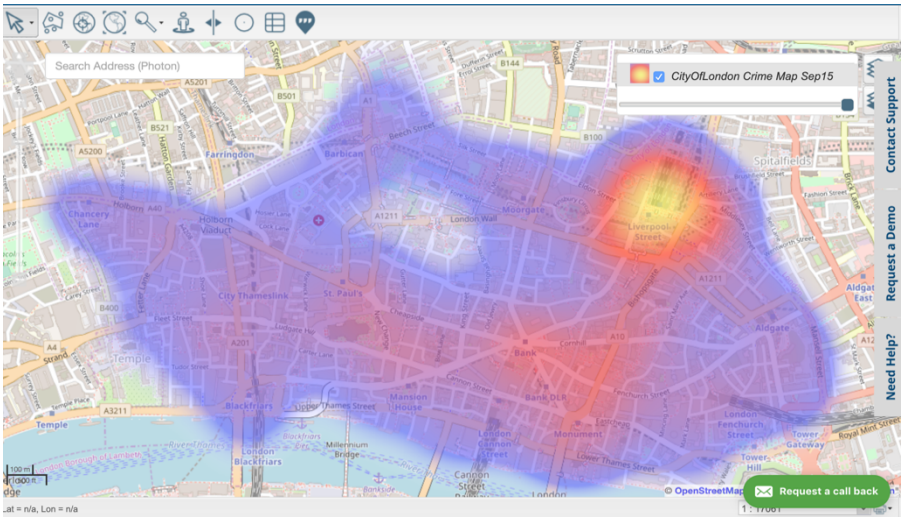

FIGURE 123 CITY OF LONDON CRIME MAP DEVELOPED BY AZIMAP AS PER SEPTEMBER 2015

> Crime mapping is an attempt to exert rational knowledge and information of a given space through some combination of imperfect information sources. It is an attempt

[416] Azimap, "2015 City of London Crime Heating Map", accessed August 13, 2019 https://www.azimap.com/explore/view/5/2015-city-of-london-crime-heat-map
[417] The UK Police crime mapping system has since changed. See Police UK, "Crime Map", accessed September 19, 2019, https://www.police.uk/metropolitan/E05009381/crime/+GHAp13/.

> to render visible that which depends on a certain invisibility. (…) Like map making, crime mapping is an exercise of power (…). The map is the phenomenon objectified, and once objectified it is its own proof. [418]

In these crime maps, collected data about the time, place and frequency of crimes was colour coded and iconicized in GIS through the software CrimeView and shared by the police to perform and encourage DIY safety with the local population. These maps were anything but objective metrics. The discretional choice of colours, icons and sizes gave a distorted, if not fear inducing, impression of areas where more funding was given to policing and surveillance than to the improvement in community services.

In short, crime maps were (and are) the demonstrations that unbiased statistics can generate prejudices and unfairness. A glance at them is sufficient to demonstrate that the unfairness of mathematical modelling is older than algorithms and proxies. As I will show, it is rooted in the profound power that mathematical models (and not just maps) exercise on the reality that they aim to represent: they are not just descriptive but prescriptive.

The reliance on the procedural rationality of statistics and algorithms is, then, fraught with operational and ethical problems, especially when these tools are applied for the assessment of risks, as in the examples that I have presented. At its basis, is the overconfident use of the past to predict the future: the models assume that circumstances are constant and can't engage change.[419] If, on one hand, models attempt to categorise and re-organise the inherent chaos of reality through mathematical and schematic criteria, on the other there is a continuous feedback loop that models generate on life when they are applied, creating even more risk. This is not so much a problem of representation but one of inference: it is not how the model truly reflects reality, but how it changes it. [420] As Wallace and many others have pointed out, maps are not just representations but instruments of power, and the same is true for any other form of network analysis. They express probabilities and not absolute truths. The technocratic and pervasive reliance on data, then, requires that its design and visualisation should be reconsidered under an ethical perspective.

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[418] Aurora Wallace, "Mapping city crime and the new aesthetic of danger." *Journal of Visual Culture* 8.1 (2009): 5-24,19. See also Mark Monmonier, *Cartographies of Danger*, (Chicago: University of Chicago Press, 2008).

[419] One scandalous example comes from just after the abolition of slavery, when former slaves struggled to get life insurance because insurance models decided that their current status was a poor risk. See Viviana A. Rotman Zelizer, *Morals and markets: The development of life insurance in the United States*, (New York: Columbia University Press, 2017).

[420] For an explanation of models as opposed to representations see Adrian Currie, "From Models-as-Fictions to Models-as-Tools." *Ergo, an Open Access Journal of Philosophy* 4 (2017), accessed December 15, 2019, https://quod.lib.umich.edu/e/ergo/12405314.0004.027/--from-models-as-fictions-to-models-as-tools?rgn=main;view=fulltext.

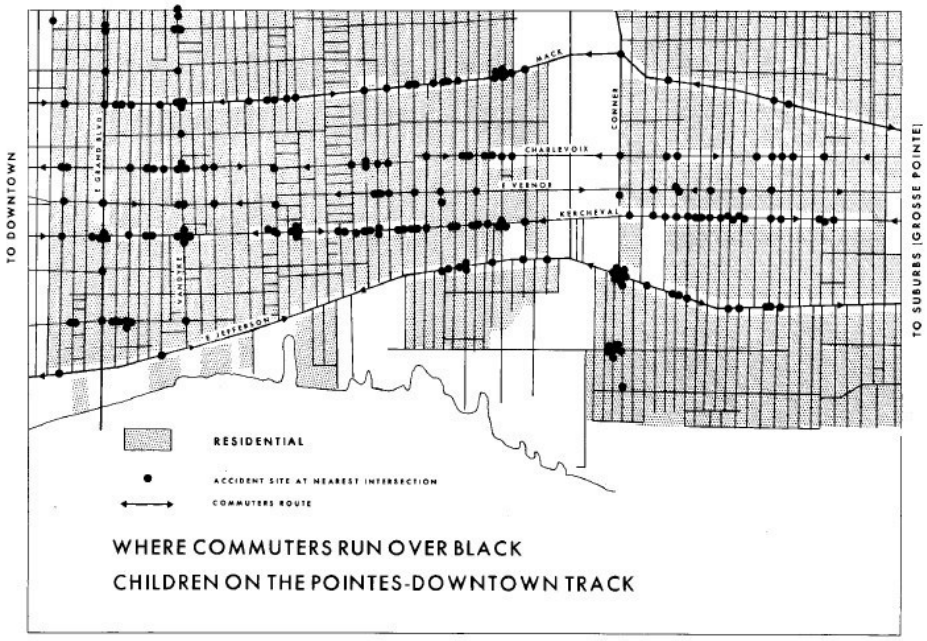

FIGURE 124 DETROIT GEOGRAPHIC EXPEDITION AND INSTITUTE, *WHERE COMMUTERS RUN OVER BLACK CHILDREN* , 1971© MIT CENTER FOR CIVIC MEDIA.

Media theorists and designers are actively campaigning for more accountable methods of data visualisation. In 2015 design theorist and practitioner Catherine D'Ingazio and Lauren F.L. Klein, for example, wrote the manifesto *Feminist Data Visualisation* which suggests 'design strategies' for tackling the unfairness of data driven decision-making processes. The manifesto, essentially, warns designers to not take data for granted and to sensibly question "by whom, for whom, with whose data and with whose values" data is collected, mined and used.[421] In fact, D'Ignazio suggests, data can also be in favour of equality by focussing on "examining power" and cites the *Detroit Geographic Expedition and Institute's* pioneering work as an example (Figure 124).[422] In this seminal project, black and minority background students worked with academics to track down on a map the places where "commuters run over black children" in Detroit. The map, one of the most significant examples of alternative cartography, is also a political crime map, which was not just directed at preventing risks in the future, but at pointing out inequalities in the present. Data, then, is not the problem, but rather which purposes, risks and opportunities it serves.

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[421] Catherine D'Ignazio and Lauren F. Klein. "Feminist data visualization." *Workshop on Visualization for the Digital Humanities (VIS4DH), Baltimore, IEEE*, 2016.
[422] Gwendolyn Warren, *The Geography of the Children of Detroit*, (Detroit: Detroit Geographical Expedition and Institute, 1971). See also Catherine D'Ignazio, "The Detroit Geographic Expedition and Institute: A case study in civic mapping." *MIT Center for Civic Media Blog* 7 (2013), accessed May 19, 2019, https://civic.mit.edu/2013/08/07/the-detroit-geographic-expedition-and-institute-a-case-study-in-civic-mapping/.

The positioning of individual perceptions and decision making in relation to figures that are essentially population-wide calculations (as I have shown) is another significant challenge to consider when visualisation techniques are implemented in media and public discourses. At the Winton Centre for Risk and Evidence Communication (UK), for instance, mathematicians and risk scholars are working together with designers and behavioural psychologists "to ensure that quantitative evidence and risk is presented to people in a fair and balanced way".[423] By studying how people respond to statistics in health communication, they show that design and visualisation can actively change how they make sense of percentages and influence choices about their health. People, for example, easily misinterpret percentages of probability for absolute truths: this is how difficult it is to visualise probability. Errors in design may lead to misunderstandings. In theory. risk amplification and correct visualisation can help people make informed decisions even in circumstances that are emotionally charged.

The problems of accurate visualisation and assessment become even more crucial in the case of long-term forecasting such as for climate change or more generally for "existential risk". At a time where environmental and political instability is presenting unprecedented challenges to the insurance sector, a rethinking of the very idea that risks are 'quantifiable' seems to be the path ahead. "Whilst it is always tempting to pretend that we can produce precise estimates of costs and benefits or the likelihood of a particular outcome, this overconfidence leads to a significant destruction of information" writes Simon Beard, a researcher from the Centre for the Study of Existential Risk.[424] In a similar vein, Andrew Stirling argues that

> Huge forces are pressuring for a state of *uncertainty-denial*. And to those interested in "*business as usual*", the apparent authority and clarity of simple numbers can offer a precious sense of stability. The belief that a "safer" world can be achieved through the technocratic believe in numbers is manifesting itself as a false promise.[425]

Visualising risk, therefore, requires a reassessment of the current conventions of visualisation to accommodate uncertainty. "Things like clean lines and shapes reinforce this

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[423] Centre for Science and Policy, "Winton Centre for Risk and Evidence Communication", accessed May 19, 2019, http://www.csap.cam.ac.uk/organisations/winton-centre-risk-and-evidence-communication/. The Harding Centre for Risk Literacy that conducts similar research in Germany.

[424] Simon Beard, "Uncertainty is not the enemy", *Centre for Research in the Arts, Social Sciences and Humanities* (blog), 3 April 2013, http://www.crassh.cam.ac.uk/blog/post/uncertainty-is-not-the-enemy.

[425] Andrew Stirling, "Politics in the language of uncertainty", *Steps Centre* (blog), 11 February 2019 https://steps-centre.org/blog/politics-in-the-language-of-uncertainty/.

idea that data visualization is always true", D'Ignazio recently declared "So, a feminist approach to data visualization looks at ways to make people feel the uncertainty, whether through using sketched lines instead of clean lines or movement and animation to show different scenarios".[426] Such conventions, however, are rarely implemented by designers because they compromise the clarity and immediacy that required them in the first place. Visualisation is, by its own definition, a form of simplification, and so is mathematical calculation, regardless of how complicated it might be.

As this brief literature review shows, percentages and numbers may coat a message with a layer of respectability, but average quantities do not necessarily mean something to individuals, not to mention that it is not always easy to "get the numbers right" as Fischhoff advocated.[427] I suspect that, on their own, maths and visualisation cannot address the ethical challenges presented by today's risks and uncertainties. If the problem is how to understand data, the solution should not just come from perfecting its collection, analysis and visualisation, but by paying attention to the very process of understanding and sense making from a human point of view, where things like the natural frequencies way of representing data for the individual can come in. It should not just mean understanding human attitudes to risk through psychometric testing and behavioural psychology (as these also are numerical sciences) but listening to what exactly escapes them. That is, the creativity and imagination of art on the one hand, and the aesthetic experience that the encounters with data sets, infographics and "machine-vision" is able to generate.[428] In both cases the images and imaginations of risk are key in the diagnosis and understanding of how to deal with what may harm us: they remind us that it's probability, and not absolute truth, that is being visualised.

Unsurprisingly, the impact of predictive technologies and risk calculations in artistic practice is vast and the following chapter will be an opportunity to reflect in detail on some of these works. For now, however, it is sufficient to point out how artworks such as *Face Cages* (Figure 120) shows with immediacy the hidden workings of mathematical models pointing, through metaphor, to what effect they may have on people's lives. But this is just one of many examples. In the film-game *Algorithmic Oracle* (2019) (Figure 125) the artist Letta Shtohryn relinquished artistic control over her work by delegating it to the multiple

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[426] Paxtyn Merten, "Interview with Catherine D'Ignazio: 6 Things Data Visualization Can Learn From Feminism", *Mediashift*, 16 Febrruary 2018, accessed May 19, 2019, http://mediashift.org/2018/02/6-things-data-visualization-can-learn-feminism/.
[427] Fischhoff, "Risk Perception", 138. Also cited in Chapter 1.
[428] For the term "machine-vision", see Paul Virilio, *The vision machine*, (Bloomington, Ind.: Indiana University Press, 1994).

possibilities of algorithms to produce parallel situations (and endings) for the public to explore. Most of the scenarios involve domestic fire accidents of different degree of seriousness: typified as scenes in between a fire-safety training video and the old cigarette cards discussed in the previous chapters. As if dismembering the mechanism of a quantum computer and its open-ended stories, the work visualises options (or the absence of them) by mimicking the logical, target-based reasoning of an algorithm and appropriating its ability to scan, calculate and quantify what might be.

FIGURE 125 LETTA SHTOHRYN, *ALGORITHMIC ORACLE,* 2019. FILM STILL, DAATA EDITIONS.

Artistic discourses are rarely considered in the academic and intellectual enquiry on risk; however, the fact that contemporary artists are directly engaging with its techniques and visual vocabulary should not be ignored. This is exactly what I am arguing in this thesis. Risk is a quantitative calculation of what may happen according to the laws of probability, where numbers are translated into models to help decisions under conditions of uncertainty. If risk modelling allows for data driven decisions, artworks can visualise, understand and problematise what it means to co-exist with the predictive nature of the current systems for organising and governing life.

The predictive nature of contemporary data analysis leads to the challenges of having to deal with the increasingly and often invasive presence of predictive decision-making models. The past is translated in data, data is combined through mathematical models and visualised, thus recommendations and decisions are made for the future, then the future looks

how the model decided it should look, in theory. Supposedly safer in the hands of unbiased, machine learning devices that feed on the constant loop of assimilating and producing data, 'human agency' over its own future negotiates different levels of uncertainty and risk. Yet data driven decisions may underestimate what Nicholas Massim Taleb called "the impact of the unpredictable"[429] or what Derrida defined as "the other".[430] Struggling with the need to situate individual life choices in the grid systems of statistical parameters, I will discuss in the following a transformation that is philosophical, political, ethical, and aesthetic.

A clarification: in 1933 the mathematician George David Birkhoff (1884–1944) developed a mathematical formula that described aesthetic appreciation as a function based on the proportion of order and complexity.[431] His approach has gained a following over the years, including contributions in the emerging field of neuroaesthetics.[432] It is important to clarify that it is not concern of this research to engage in a debate about how to define aesthetic appreciation with numbers. I am not concerned with questions of perspective, *golden ratio* and geometric abstraction in the strict history of art sense, nor will I engage with the current field of research that asks whether AI is capable of making art.[433] Instead I will focus on how the aesthetic dimension of risk emerges through quantitative data visualisations and maps that are used to prevent risk within the broader spectrum of visual culture. A more direct engagement with art will follow in the next chapter, which focusses on how artists have engaged with the methods, contradictions and fallacies of predictive technologies.

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[429] Nassim Nicholas Taleb, *The black swan: The impact of the highly improbable*, (New York: Random House, 2007).
[430] Jacques, Derrida, *Writing and Difference*, trans. Alan Bass, (London: Routledge, 1980).
[431] George D. Birkhoff, *Aesthetic Measure,* (Cambridge, Mass: Harvard University, 1933).
[432] Anjan Chatterjee and Oshin Vartanian. "Neuroaesthetics." *Trends in cognitive sciences* 18.7 (2014): 370-375.
[433] Sofian Audry and Jon Ippolito. "Can Artificial Intelligence Make Art without Artists? Ask the Viewer." In *Arts*, 8.1 (2019), 35, accessed Dec 15, 2019, https://www.mdpi.com/2076-0752/8/1/35

8.4 When Data Become Aesthetic: Patterned Ways of Visualising Risk

As I have demonstrated, the visual sphere is the domain where numerical calculations of risks and probability are translated into laymen's terms. Graphs and maps are essentially easier to read (or misunderstand) than tabs of numbers. Moreover, visualisations offer a sensible manifestation for the invisibility of risks, because risk concerns both the whole and the averages which we struggle to place ourselves within as individuals. "Visualisation", writes science historian Orit Halpern "came to define bringing that which is not already present into sight".[434] I shall argue that, as a sensible manifestation, the elaboration of data through visualising techniques has come to appear as a style and as an aesthetic feature of probability. Like probability, visualisation is numerically obtained and imperfect. And, like probability, it describes possibilities and not certitudes. The following paragraphs will concentrate on unpacking this aesthetic of probability from an historical perspective. I will firstly explain how data became 'aesthetic' after the post war period and then scrutinise its features through the visual analysis of diagnostic images.

In the last two centuries, liberal societies have increasingly relied on various forms of data visualisation and network analysis that have in the meantime become an integral part of their visual language. Helped by developments in network analysis, cybernetics, system theory and digital culture, they have had an undeniable impact on a decisional as well as aesthetic level. In her book *Beautiful Data, History of Vision and Reason since 1945,* science historian Orit Halpern puts this aesthetic transformation into an historical perspective. The advent of cybernetics in the post-war period encouraged the study and implementation of auto-regulatory systems in nature, machines and social phenomena. At the same time, schematic 'patterns' began to emerge that mapped factories, computers, experiments, traffic and social relations: through them the 'invisible' workings of human, animal, biological, social and cultural relations became apparent.

For Halpern, this new 'ideology' brought a significant shift in recording and displaying information "that made data appear *aesthetic*, valuable, and therefore ideologically powerful",[435]

> the cybernetic reformulation of reason produced new forms of measurement and methods in the social and behavioural sciences, encouraging a shift toward 'data-driven'

[434] Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945*, (Durham, NC: Duke University Press, 2014), 21.
[435] Elisabeth Engel, "Beautiful Data: A History of Vision and Reason since 1945", review of Claire Halpern's book, *Canadian Journal of History*. Winter2017, 52.3 (2017): 656.

research adjoined to a valorisation of visualization as the benchmark of truth, and as a moral and democratic virtue.[436]

For Halpern, cybernetics trained people to sense and analyse the world according to a communicative objectivity that manifested itself through the repetition and sequencing of data into 'patterned' forms of visualisation. Seen as the guarantor of "objectivity", this aesthetic process was the formal embodiment of an ideological shift towards 'controlling' and 'governing' the processes of knowledge formation through models designed for the analysis of complex systems.[437]

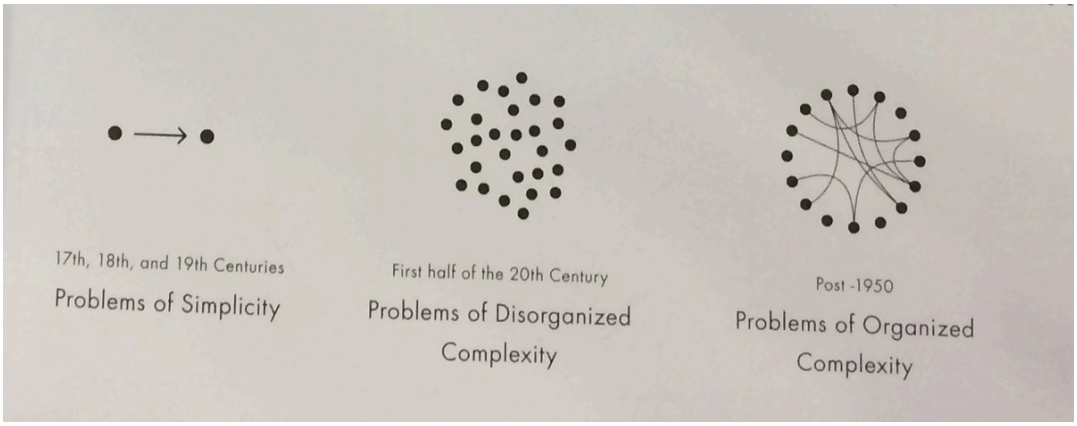

FIGURE 126 WARREN WEAVER'S 3 STAGES OF SCIENCE AS ILLUSTRATED BY MANUEL LIMA IN *VISUAL COMPLEXITY,* P.45.

The scientist Warren Weaver (1894–1978) had already theorised similar ideas in his famous article *Science and Complexity* (1948) where he introduced the concept of organised complexity (Figure 126) [438] Weaver wrote that scientists in the past were concerned with resolving problems of simple interactions between variables (see for example the direct cause-effect of empiricism), but soon became aware of the increasing complexity of phenomena. In this second stage of science, scientists began to deal with problems of "disorganised complexity" where the interaction between different factors began to be considered even if it was largely believed to be random (see for example Poincaré's essay on chance).[439] These two stages were about to make space for a new understanding of

[436] Halpern, *Beautiful,* 148.
[437] For a detailed study on objectivity in science illustrations see Lorraine Daston and Peter L. Galison, *Objectivity*, (New York: Zone Books, 2015).
[438] Warren Weaver, "Science and complexity", *Facets of systems science*, (Boston, MA: Springer, 1991): 449-456.
[439] Henri Poincaré, "Chance." *The Monist,* 22.1 (1912): 31-52.

phenomena brought about by cybernetics. This was a stage of *organized complexity*, where "emergent patterns" could be identified in the interactions between distinguishable objects operating in complex systems. Problems such as "commodity price fluctuation, currency stabilization, war strategies and behavioural patterns of social groups (…) required science to make a great advancement" wrote Weaver.[440] The problems of organised complexity, then, required a new "procedural rationality" based on the integration of science, statistics, engineering and design and the reorganisation of information into a form of communicative objectivity.

Communicative objectivity and system analysis, then, have made data become aesthetic. Effectively, the forms of data organisation into complex systems enabled by cybernetics, produced unprecedented changes in the way reality could be diagnosed. Systems analysis and visualisation could simultaneously simplify and complicate knowledge, allowing for general or transversal observations. In this sense they forged the basis for the personalised analysis that is an inherent possibility in the collection of data (for *personalisation,* meaning the unique coordinates of a single point in a large grid). As Halpern writes about Norbert Wiener, (1894–1964) who conceptualised cybernetics,

> His vision was a world where there is no "unknown" left to discover, only an accumulation of records that must be recombined, analysed, and processed";[441] also, "Cybernetics is thus a science of control or prediction of future events and actions' that bears much resemblance to current Big Data promises.[442]

Examples of such ideology of vision are countless. From the 1930s hand drawn visualisations of social networks in Moreno's and Jennings pioneering work on "sociometry",[443] to Edward Tufte's information design,[444] patterned visual displays of data have made 'probability' apparent to the eye. They have become the visual aids for the diagnosis of everything, and risk in particular. Viral diseases, international drug dealings, space debris, or the distance between the eye in face recognition technologies are all, essentially, forms of pattern visualisations obtained through data analysis. Moreover graphs, metrics and data visualisations have over the years become a valuable diagnostic tool for those artists who have committed to 'information' as an alternative to traditional methods of

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[440] Cited in Manuel Lima, *Visual Complexity. Mapping Patterns of Information*, (New York: Princeton Architectural Press, 2013).
[441] Halpern, *Beautiful*, 12
[442] Halpern, *Beautiful*, 25.
[443] Jacob L. Moreno and H. H. Jennings. "Who shall survive. Vol. 58." *Nervous and Mental Disease Publishing Company,* Washington, DC (1934).
[444] Edward R. Tufte, *The visual display of quantitative information*, Vol. 2, (Cheshire, CT: Graphics press, 2001).

representation as well as a critical tool to investigate the interaction of political, social and economic forces. A number of acclaimed exhibitions in the 1960s are evidence of the great impact that cybernetics, system thinking and communicative objectivity had on the visual culture of the time.[445] The show *Information* (Museum of Modern Art, NYC, Summer, 1970) curated by Kynaston McShine (with Lucy Lippard) brought together artists using systems, structure and seriality as mediums and attempted to integrate their practice in the actual events of the real world. *Information*'s interdisciplinary catalogue made of collated images from the most disparate publications shows how the curator (and the artists involved) saw 'the system' as both an artistic medium and a synonym of the establishment that artists aimed at criticising.[446] Accelerated by RAND's application of system thinking in military defence and warfare, using systems to go against the system became a precise artistic practice for the artists associated with the movement of Information Art that emerged in the same years. Hans Haacke and Marc Lombardi, two artists linked to the movement in different periods, have developed an artistic practice based on collecting data and identifying unlikely connections between people in power (see for example Haacke seminal work *MOMA Pool*, 1970). More recently, Lombardi's stunning graphite drawing *George W. Bush, Harken Energy and Jackson Stephens c.1979–90, 5th version* (1999) (Figure 128) was famously examined by the CIA whilst on display at New York MOMA following 9/11 due to the fact that the Bush and Bin Laden family were displayed alongside each other. In the 2000s, Net Artists such as Heath Bunting (Figure 127) and Paolo Cirio have made ample use of network visualisation (see for example Bunting's *Status Project* 2008, an experiment in mapping Terrorism) to critique the absurdity of corporate and security organisational methods by appropriating their visual language. Even Zac Blas's work cited previously belongs to a lineage of works that makes visible what happens behind the scene of current affairs by making patterns apparent and aesthetic. In a 2017 essay, Cirio defined this practice as 'evidentiary aesthetics', writing,

> Quantifiable, computable, and shareable documentary forms provide a sense of amplified realism. An unseeable reality appears to us as sharper evidence once it is intercepted and decoded in all its complexity (…) Evidentiary realists purposefully

[445] For an extensive discussion on this see Edward A. Shanken, *Systems, Documents of Contemporary* Art, (London: Whitechapel Gallery, 2015).
[446] Kynaston McShine, *Information*, (New York: Museum of Modern Art, 1970). See also Francis Halsall, "Systems aesthetics and the system as medium." *Systems Art Symposium, Whitechapel Art Gallery, UK*. 26 -27 October 2007, accessed July 17, 2019, http://systemsart.org/halsall_paper.html

challenge the detectability of complex systems to illuminate and enhance what can't be seen at plain sight and qualify as evidence.[447]

I will discuss artistic practice engagement with patterns of probability in greater detail in the next chapter, but is here it suffices to say that schematic images, as exemplified by these works, are not just the domain of science, since people can look at art and attempt to find different kinds of answers.

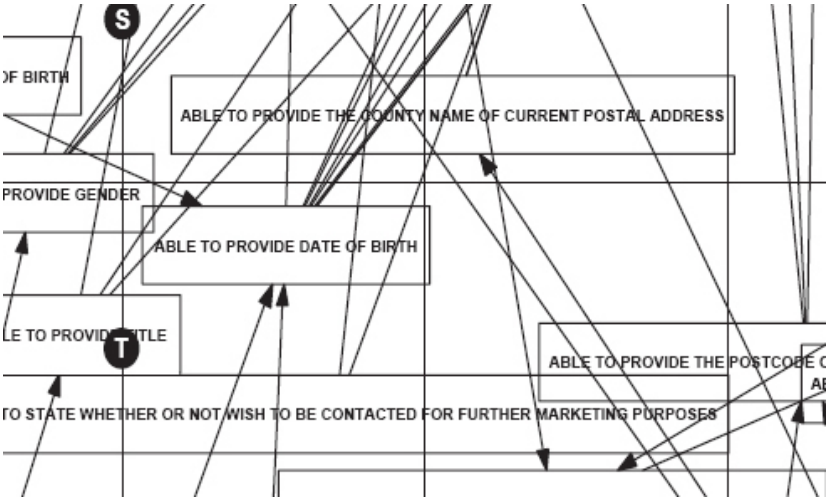

FIGURE 127 HEATH BUNTING, *A TERRORIST - THE STATUS PROJECT*, 2008 (DETAIL). TATE COLLECTION.

[447] Paolo Cirio, "Evidentiary Realism" in Cirio Paolo, Launay Aude, De La Torre, Blanca, *Evidentiary Realism* ([S.l.]: Lulu Com, 2019). Catalogue of the homonymous exhibition at Evidentiary Realism group show at NOME Gallery, Berlin December 1, 2017 – February 17, 2018.

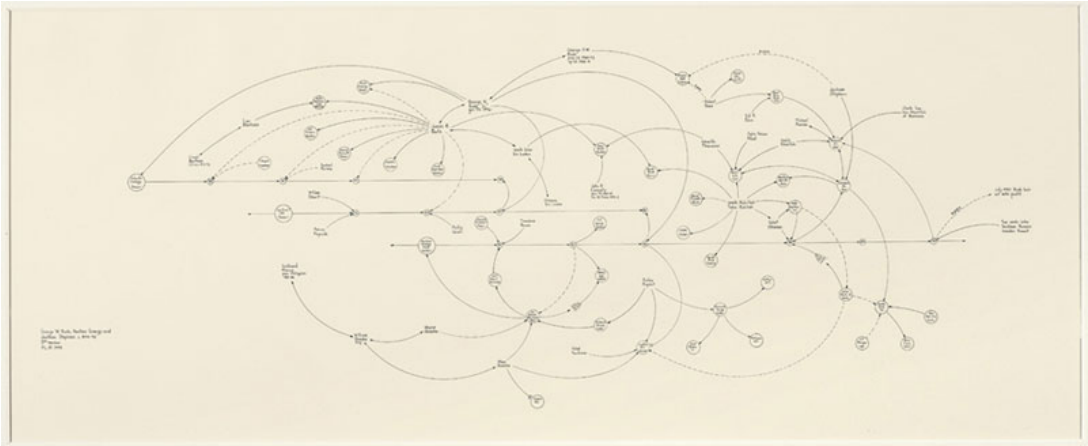

FIGURE 128 MARK LOMBARDI, *GEORGE W. BUSH, HARKEN ENERGY AND JACKSON STEPHENS C.*1979–90, 5TH VERSION, 1999.

In conclusion 'structural visualisation' have made a progressive appearance in the visual language of the West leading up to their ubiquitous presence today. Helped by developments in cybernetics, system theory and digital culture, they have had an undeniable impact on a decisional as well as an aesthetic level. At the basis of their success is the authority that comes from the fact that they are not subjective endeavours, but the result of objective data and rational calculations. Halpern is right in saying that cybernetic, information systems and big data have irreversibly changed the way we visualise what is deemed as reliable, scientifically proven or exact. Data visualisations have materialised probability for the human and artificial visual senses.

The communicative objectivity of data visualisation, then, indicates not just a shift in forms of representation, but of the modes in which intellectual work is carried out and legitimised through numerical calculations and 'schematic' documents. Diagrams, maps, statistical graphs, GIS, renders, or network analysis organise, interpret and analyse an ever-increasing amount of data. If Derrida famously compared our impulse to archive to a slightly irrational, melancholiac fever,[448] the ability to find patterns through data and its systematisation through cybernetics has visually shaped this archiving compulsion. Schematic images and data visualisations have become reliable and useful tools for decision making. As I will discuss, they not only describe the world, but prescribe plans for actions. I shall call them diagnostic images

[448] "It is to have a compulsive, repetitive, and nostalgic desire for the archive, an irrepressible desire to return to the origin, a homesickness, a nostalgia for the return to the most archaic place of absolute commencement". Jacques Derrida, *Archive fever: a Freudian impression*, (Chicago: University of Chicago Press, 1998), 91.

8.5 Numbers' Patterns that Solve Problems: *Lo Shu*

I have observed how the communication and assessment of risk has become, since the post-war period, |increasingly dependent on numerical calculation and their visualisation, thanks in part to developments and aesthetic repercussions of cybernetics or complexity theory. The ability to find meaningful patterns, as I have hinted in the conclusion, was not just a tool to understand reality but to 'prescribe' solutions. In order to defend the importance of visualisation and modelling as mediums through which risk is aesthetically experienced, I will now focus on the role that images have historically taken in the diagnosis of risk. Through the lens of three 'diagnostic' images from different periods in history, I will point to 'pattern recognition' and the non-linear visualisations of time as important visual features of the aesthetics of probability. Such visual features, I should maintain, have enabled the formulation of increasingly more sophisticated predictive technologies.

Diagnostic images are images that visualise the hidden structures of reality as aids in problem solving. They existed well before the 20th century. Beside the images created via scanning techniques such as x-ray, satellites and microscopes, many diagnostic images are (and have been) the visualisations of numerical patterns. These will form the focus of the following discussion.

"Recognizing number patterns is a vital problem-solving skill" states a recent article on the pedagogy of mathematics "If you see a pattern when you look systematically at specific examples, you can use that pattern to generalize what you see into a broader solution to a problem".[449] Introducing the role that numerical patterns have represented in orienting decision making, the same paper suggested that magic squares can teach children about the beauty and importance of mathematics in every-day life. Magic squares, then, should be seen as the manifestations of the inner order of reality. For this reason, the first image that I will discuss is a magic square.

[449] Hui Fang Huang Su et all., "Number Patterns", *Transformations,* 2.2 (2016), accessed May 19, 2019, https://nsuworks.nova.edu/transformations/vol2/iss2/5.

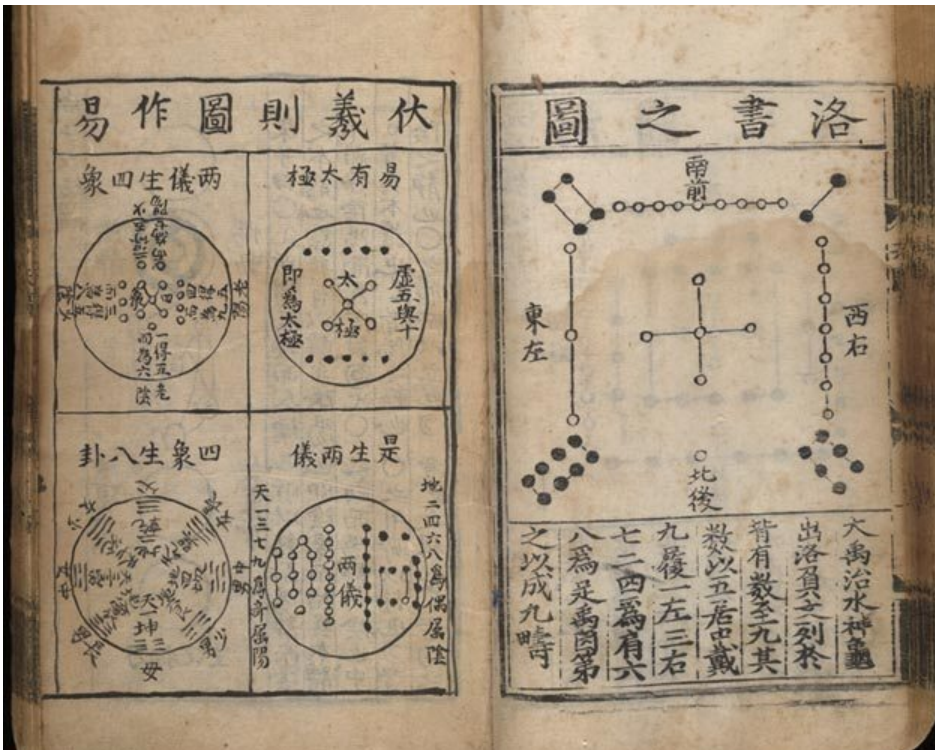

FIGURE 129 LO SHU DIAGRAM OR ANCIENT CHINESE CONCEPT OF CHANGE FROM *THE ASTRONOMICAL PHENOMENA* (TIEN YUAN FA WEI). COMPILED BY BAO YUNLONG IN THE 13TH CENTURY. MING DYNASTY EDITION, 1457–1463.

The Lo Shu scroll (Figure 129) is an ancient example of an oracular technology based on the recognition of numerical patterns. It is a legendary diagram that featured, among other sources, in the *Book of Changes* which contains the principles of both Feng Shui philosophy and I Ching, the ancient oracular system. *Lo Shu*[450] is both the oldest known example of a magic square and, according to legends, a map. In the diagram, numbers are in fact not written as conventional ciphers but as constellations of dots and their connections, hence its appearance and status as astrological map. Some dots are black (full) or some are white (empty): if one counts each dot as one, then the sum of the numbers in each row, column and diagonal is the same, fifteen. This regular pattern in the random sequencing of numbers which has captured the imagination of both Western and oriental thought for centuries, was, effectively, a tool for decision making (or problem solving).[451] Legends about Lo Shu date

[450] Yunlong et all., *Tian Yuan Fa Wei [5 Juan]* (The astronomical phenomena) (Shanghai: Shanghai guji chubanshe, 1990). Digital version accessed May 19, 2019, https://dl.wdl.org/18725/service/18725_1.pdf.

[451] Magic squares first appeared in Europe in *Kitāb tadbīrāt al-kawākib* (Book on the Influences of the Planets) written by Ibn Zarkali of Toledo, Al-Andalus, at the beginning of the 11th century

back as early as 650 CE, and can be seen in the reporting of a huge flood of the river Lo (Lo Shu in Chinese). As Emperor Fu Xi was fruitlessly attempting to stop the flood through sacrifices, a turtle emerged from the river with a pattern on her shell. The emperor (or children, depending on the version) eventually paid attention to the pattern, which contained information about how to stop the flood, and the region was saved. But what sort of information did this pattern contain? Most interpretations suggest that the emperor understood from it that 15 people had to be sacrificed to stop the deluge, but I suggest that the emperor may well have resolved to use the pattern as a map to help control the river and protect the people. In support of this hypothesis, one could speculate that the empty and full dots evoked open and closed doors (or barriers), suggesting an affinity to modern computational systems. The binary sequencing of one and zeros, as well as dichotomies of empty and full, Yin and Yang, and the continuous and broken lines from the *I Ching*'s hexagrams may also come to mind. Similarly (to such binary languages), I can affirm that Lo Shu is essentially a mathematical code that models and simplifies reality according to the sequencing of 1 and 0 just like a modern information system. Did the emperor interpret the pattern on the turtle's shell as an indicator of where the water had to be channelled (the black dots indicating the escape routes)? Was *Lo Shu* actually used to contain floods? One can only speculate, but the importance of Lo Shu in Feng Shui, the ancient art of organising things in space to accommodate principles of energy flow, suggests that if the pattern was a model that never had a 'predictive' value (a subject that is beyond the scope of this research) it certainly had a prescriptive one. Even today, houses are built, interiors designed, and decisions taken according to the principles of Lo Shu.

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and became widely reproduced in occultist treatises across the 13th century. These texts, however, did not describe the magic squares principles of construction (today well known), and the entire theory had to be totally rediscovered through the years. By the 18th century, the mysticism attached to the squares had vanished and they were investigated for mainly mathematical recreational purposes. Durer, however must have been aware of their constructive principles when he included a magic square in his most famous engraving, *Melancholia* (1514), where his date of birth and the year of the artwork production were encrypted.

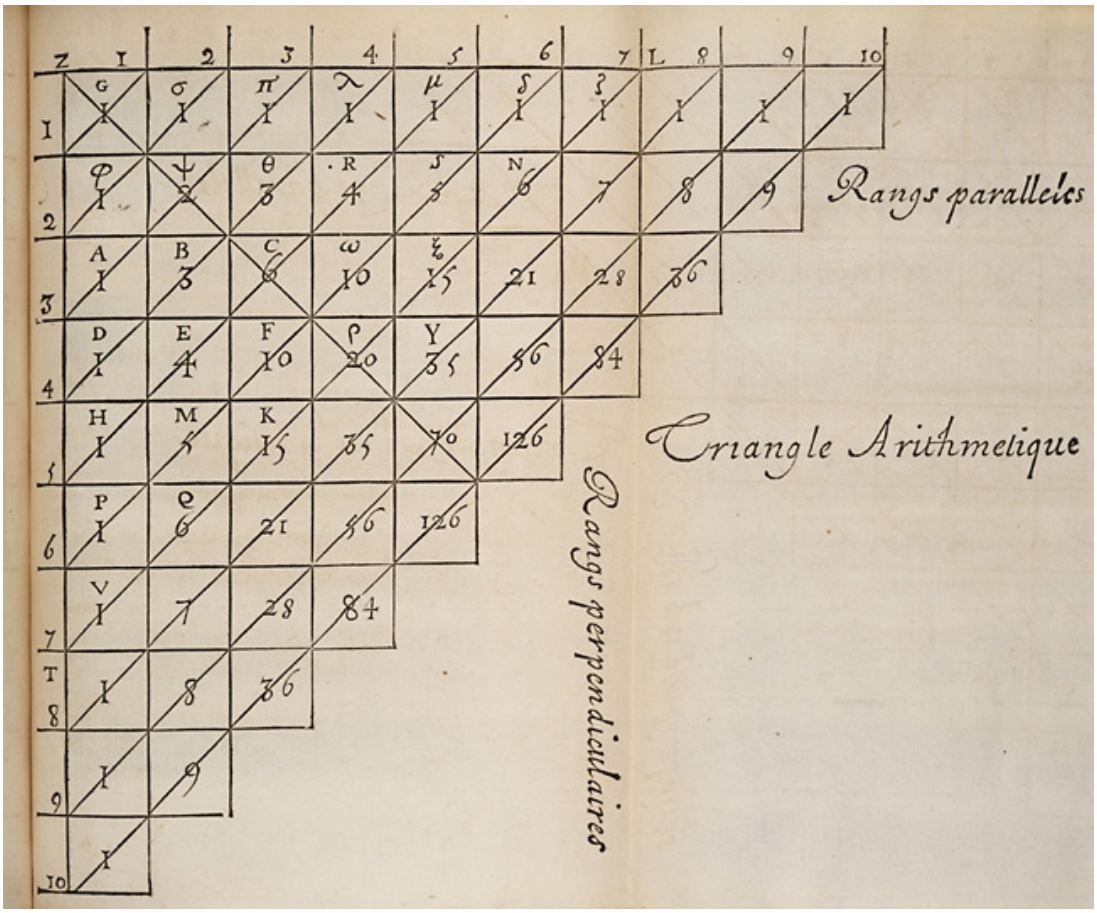

FIGURE 130 BLAISE PASCAL, ILLUSTRATION FROM *TRAITE DU TRIANGLE ARITHMETIQUE* 1665.

The search for numerical patterns as an aid in problem solving then is far more ancient and intuitive than the advent of statistics and modern predictive modelling techniques. From Lo Shu, to the famous Pascal Triangle (Figure 130) which has been used for centuries in basic probability calculations, numbers' patterns have always helped in decision making, regardless of their effective accuracy in describing real situations.[452] Halpern's thesis that communicative objectivity is historically constructed, then, may not be entirely correct. But her remarks that the 'credibility' of numbers goes way beyond their actual ability to describe what really happens is certainly correct. There is an aesthetic in numbers that gives comfort to rational reasoning. And there is a magic in numbers too, which makes us believe that they

[452] Pascal published the triangle in his *Traité du triangle arithmétique* (*Treatise on Arithmetical Triangle*)1655, however this probability calculation device had been well known for several years and an older version appeared in the Chinese mathematician book Zhu Shijie (circa 1260–1320) *Siyuan yujian* (Precious Mirror of the Four Elements) from 1303. For a history of Pascal Triangle see Anthony William Fairbank Edwards, *Pascal's Arithmetical Triangle: The Story of a Mathematical Idea,* (UK: Dover Publications, 2019).

don't lie. As Lo Shu's influence over decision making reveals, mathematical models can be 'prescriptive' even when they don't necessarily predict. Regardless of their questionable analytical 'objectivity' and accuracy, maths does not just describe the world (as Galileo sustained) but often prescribes it.

The magic of Lo Shu, moreover, does not just consist in his numerical aspects, but also in his diagrammatic arrangement of dots and lines: it resembles an astrological map as much as a contemporary "risk visualisation".[453] There must be some sort of unifying aesthetic feature about pattern recognition that makes it particularly trustworthy and reassuring. As ancient civilizations spotted patterns in the sky by connecting stars with imaginative lines and interrogated them before battles, or other challenging circumstances, contemporary protocols rely on pattern recognition for their decision making. Epidemiologists observe how contagious diseases spread by looking at contact tracing imaging (Figure 131);[454] the Word Economic Forum assesses the interrelations between global catastrophic risks by comparing their severity on a network mapping (Figure 132).[455] The difference is that they visualise objective data to quantify risks according to the laws of probability.[456] In his seminal text about the history of probability Ian Hacking explains that when probability came about it was a response to a world that had become uncertain, chaotic and unstable, in other words a world dominated by chance. Although the transition between these world views is hardly definable, and they may have coexisted for very long times and in different geographical places, Hacking's demarcation explains the difference between oracular technologies such as Lo Shu and modern forecasting methods. The first reflects a fatalistic vision of the world, whilst the second is ruled by more or less accurate laws of probability.

What was one day an oracular predictive technology is now an evidence-based forecasting. But how certain are we that forecasting effectively describes the reality of

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[453] "Risk visualisations" according to Mitterhofer and Jordan, are examples of "structural visualisations", classified as "second order isomorphic types" by Shepard and Chipman in 1970; that is, they represent *relations* among objects via lines and conventional symbols. Hermann Mitterhofer and Silvia Jordan, "Imagining Risk – The visual dimension in risk analysis", *Routledge Handbook of Risk Studies,* eds Adam Burgess, Alberto Alemanno, and Jens O Zinn, (London; New York: Routledge, 2016), 327.

[454] According to Manuel Lima, this map was obtained using actual contact data from the community in which the outbreak was happening. "Black nodes are persons with clinical disease (and are potentially infectious), pink nodes represent exposed persons with incubating (or dormant) infection and are not infectious, green represent exposed persons with no infection and are not infectious. *Visual Complexity,* accessed October 13 2019, http://www.visualcomplexity.com/vc/project.cfm?id=28.

[455] This map is composed using data obtained through a Global Risks Perception Survey (GRPS), completed by 900 members of the World Economic Forum's global multi-stakeholder community. Respondents are drawn from business, academia, civil society and the public. World Economic Forum, *Global Risk Report 2019*, 14th Edition, 16 January 2019, accessed May 15, 2019, http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf.

[456] Hacking, *The Emergence of Probability.*

things? Are we not too often blindsided by the trustworthiness of probability and data visualisation? Or, to formulate the same question in different terms: how easy it is to mistake randomness for probability and probability for certainty?

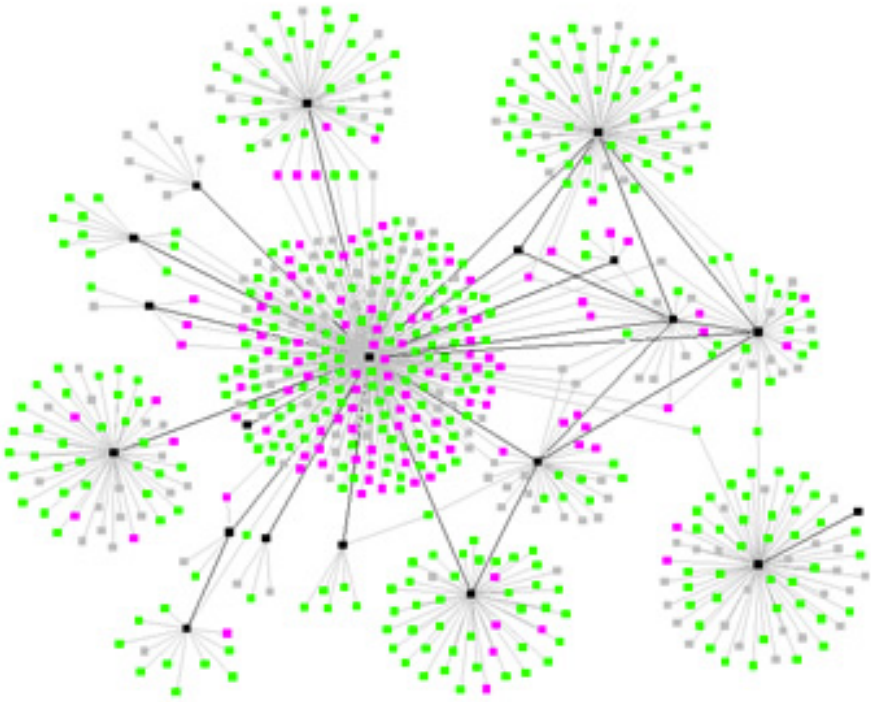

FIGURE 131 VALDIS KREBS, *SPREAD OF AN AIRBORNE CONTAGION VIA CONTACT TRACING*, 2003

FIGURE 132 MORITZ STEFANER, *THE RISK INTERCONNECTION MAP* FROM THE GLOBAL RISK REPORT 2019, BY THE WORLD ECONOMIC FORUM ANNUAL. THE MAP IS OBTAINED THROUGH INTERVIEWS WITH WORLD LEADING EXPERTS AND THEIR PERCEPTION OF FUTURE RISKS.

A rhetorical question; as discussed, data-driven decision making and the ethical and methodological challenges of visualising probability are still unresolved issues and our reliance on the beauty of diagrammatic visualisations is often quite irrational. It may well be just a matter of taste or reassurance. Diagrams and visualisations, in fact, fulfil the operational needs for decision-making tools regardless of their mathematical accuracy or adherence to reality. "Diagrams are characterised by normativity", wrote Mitterhofer and Jordan in a recent essay about the visual dimension of risk analysis. "They invite and to some extend 'prescribe' particular ways of perception and action. That is to say that diagrammatic reasoning is always rule based".[457]

As societies have searched for answers through pattern recognition, what they have seen has enabled them to deal with a future of uncertainty. With the advent of cybernetics, data and information technologies, these processes have become progressively more reliant on probability calculations: old oracles have become tools for trend forecasting. The act of 'mapping', in its original function of 'path finding' has been a constant of this process through history, enabling for more or less accurate and data-driven decisions. These predictive models, however, do not predict the future, as accurate and evidence based as they might be. Trend forecasts change over time and, with or without the aid of probability, is there a clear demarcation between true or false projections?

[457] Mitterhofer, "Imaging Risk", 327.

8.6 History Repeats Itself: Spatialising Time in John Auldjo's Map of Vesuvius

I have just argued that if patterns and maps have historically covered the function of 'problem solving' (in physical space as much as in the future) they have also induced some form of normativity to reality. This is even more true when the problems that that we try for find are not how to get to physical spaces but how to pre-empt future events. The issue with predictive modelling and forecasting is in the assumption that the future will be a probable adaptation of the past. The future may just look like the past, or completely different, but in any case, it is data from the past that provides the evidence necessary to forecasting (as opposed to predicting). This section will focus on the intrinsic relation between probability and an understanding of history as cyclically repeating itself. It will do so by analysing how data visualisations are constructed around the recoding and spatializing of the past. The aesthetic of probability, I should argue has to do with the human attempts to reconceptualise vision in relation to the reoccurrences of events; and as an aid for navigating the uncertain future. It is the effect of a reorganization of vision according to the recurring cycles of history, were time is no longer visualised as a timeline, but as pattern of reoccurrences, as in John Auldjo's Map of the Vesuvius' eruptions (Figure 133)

I have already emphasised at the beginning of this chapter the importance of predictive monitoring in the calculus of probability that is at the basis of estimation of risk. In the calculation of the *risk factor*, the introduction of a time variable made risks to health visible and assessable. Risks were assessed through the progressive monitoring and comparing of a given situation in different times that enabled for the identification of patterns of probability. Similar quantitative information is today translated into omnipresent curves, bands and graphs, which spatialises specific "time steps" as if they were strategic points in maps, tree diagrams or other forms of mark making. But how did such methods of visualising time come about?

In Chapter 1, I discussed how, for instance, the ancient Egyptians monitored the level of the water *at different times* to observe regular patterns in the Nile flooding and its repercussions on agriculture. But there was, moreover, one further aspect of the Egyptians' disaster management planning: they also noticed that a star appeared in the sky just before the flood seasons, and it was by mapping its position that they developed their calendars.[458] Thanks to this capacity to spot recurring patterns in the sky, ancient populations like the

[458] Farid S. Atiya, *Ancient Egypt*, 2006.

Egyptians could zoom out from their everyday existence and gain a larger perspective on how natural phenomena changed over time. In its historically more basic forms, probability originated merely in the observation of recurring patterns. Beside the alternation of day and night, they could monitor the reoccurrences of events and recognise the returning patterns of seasons and years, predict cold weather and shorter nights. These forms of prediction are very distinct from the oracular technologies that I have described and much more similar to the current methods of forecasting (they also lead us to understand how astrology-based predictions came about).[459] In fact, what distinguishes them is the recording of time reoccurrences beyond simple pattern recognition which they visualised through their calendars. Simple mapping by itself was not sufficient for forecasting. Calendars, on the other hand did not contain the astrological information that led to their compilation, they were not 'path finding' devices.

The question of how to visualise time, and more specifically the reoccurrences of time, is therefore central to the visualisation of risk and probability. How could a map also represent time, rather than just space? Better yet, how could one travel through time and explore the future in a way that wasn't a blind guess but utilised some sort of path-finding device? What would a 'predictive map' look like? This would have to wait until the 18th century when risk began to be 'visualised' or 'mapped' alongside traditional lists and spreadsheets.

A Map of Vesuvius (1831) by John Auldjo (1805–1886) perfectly encapsulates the essence of this important transition (Figure 133). John Auldjo was an English-Canadian naturalist, traveller and artist who visited Italy as a part of the Grand Tour. After climbing Mont Blanc in 1828, he published a successful account of the journey containing several illustrations.[460] He then decided to climb Vesuvius near Naples in 1831. This was a time of high activity for the volcano, which was around that time attracting the interest of several intellectuals, poets and scientists coming from the Romantic circles around Europe. An autodidact with no particular training (he had dropped out of Cambridge University), Auldjo wanted to understand where lava had flown during past eruptions, so he methodically collected several minerals, which he was then able to date in relation to past eruptions up to 1631.

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[459] Edward Graham Richards, *Mapping Time: The Calendar and its History*, (Oxford: Oxford University Press, 1998).
[460] John Auldjo, *Narrative of an Ascent to the Summit of Mont Blanc, on the 8th and 9th August, 1827. by John Auldjo, Esq. of Trinity College, Cambridge*. (London: Printed for Longman, Rees, Orme, Brown, and Green, Paternoster-Row, 1828).

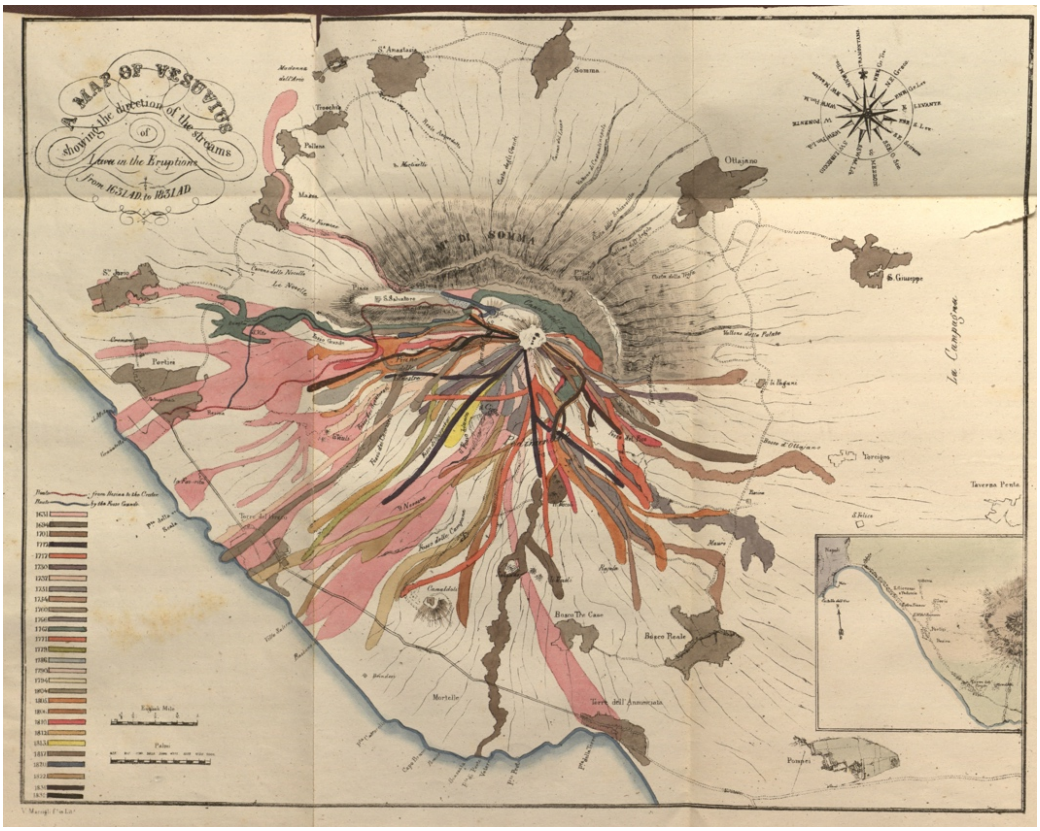

FIGURE 133 JOHN AULDJO RICHARDSON, "A MAP OF VESUVIUS", FROM *SKETCHES OF VESUVIUS*, 1831. DEPARTMENT OF SPECIAL COLLECTIONS, MEMORIAL LIBRARY, UNIVERSITY OF WISCONSIN-MADISON.

Unfortunately, sediments from the previous eruptions were hard to map, as the traces were confused. The result was an extraordinary map in which each of the volcano eruptions was colour coded and visualised. The two volcano craters stand out at the centre, spilling out lava as it was a mixture of multicoloured streamers. Observing the shape of each of them, one can imagine the progression of the incandesced lava moving towards the valleys, engulfing the towns, gradually reaching the sea or exhausting itself by penetrating into the land. Yet the image contains nothing of the terrifying account of destructions that was popular in Romantic Art (John Martin, J. M. W. Turner or Caspar David Friedrich (1774–1840) or in other popular depictions of volcano explosions.[461]

I shall see the map as an early precursor of a Geographic Information System, a hybrid in every sense, one that translated the Romantic fascination with the sublime in nature, into

[461] See for example Alessandro Sanquirico's set design depicting the eruption of Vesuvius for Giovanni Pacini's opera, *L'ultimo giorno di Pompei,* which premiered at the Teatro San Carlo, Naples in 1825. Or *The Eruption of Vesuvius, August 24, AD 79*, 1813, Pierre-Henri de Valenciennes. Oil on canvas, 147.5 x 195.5 cm. Toulouse, Musée des Augustins.

a visualisation of data proper of scientific illustration. On an aesthetic level, the success of Auldjo's lithography (the book was widely circulated among the general public thanks also to the 'beautiful illustrations') demonstrates a shift in aesthetic taste as much as in thinking: drama was no longer required to appreciate pictures, only the accountable, emotionless visualisation of data was needed. A precursor of what Halpern may have defined as 'communicative objectivity'.

Even more important to my argument, however, is how the image combines cartography with "chronography".[462] Timelines were a popular trend in the 19th century, where historical events were visualised and sequenced with the help of visual metaphors such as water streams and trees.[463] However, Auldjo's map does something very different: it visualises the *frequencies* of events against the backdrop of a cartographic representation of a real geographic region. Thus, time is visualised in space not as a moving image, timeline or sequence, but is instead spatialised through the compression (in space) of data collected from past events. With this map we can assist a process of recalling that is enabled by the manipulation of different temporalities which, in Bergsonian terms, "prolongs a plurality of moments into each other, contracting them into a single intuition".[464] Auldjo's lithograph not only enabled several discoveries around how lava behaves, but on a more specific level, it was also able to indicate which of the surrounding towns were mostly in danger should the volcano erupt again. A sort of "proto accident map", Auldjo's portrait of Vesuvius's activity relied on the study of sediments rather than statistics, as those were the tools that had literally crystallised events from the past. And yet, like a modern insurance map, it contained information that would prove useful in defining insurance premiums according to accident rates or post codes. Information from the past was thus used to 'forecast' the future in order to recalibrate risk. Moreover, the past becomes translated into a plan for action.

This shift in the way the relations between past, present and future are visualised in Auldjo's Map is, then, both aesthetic and philosophical. Shortly thereafter, Florence Nightingale's "Diagram of the Causes of Mortality" between 1854 and 1855 used colour coding to demonstrate that the principle causes of death in the Crimean War were not

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[462] The word "chronography" firstly appeared in 1753. Daniel Rosenberg, Anthony Grafton and Princeton A. P. Staff, *Cartographies of Time*, (New York: Princeton Architectural Press, 2013).
[463] See Friedrich Strass's *Storm der Zeiten* (1804) or Stephen and Daniel Dod's *A Chronological, Historical and Biographical Chart* (1807), both reproduced in *Cartographies of Time*, 144–145.
[464] Cited in Halpern, *Beautiful*, 55, where she remarks that "certain forms of 'memory' are therefore continually active, producing the future. In the process of recalling we induce action".

wounds but their related illnesses.[465] Her findings enabled a rethinking and reorganisation of how first aid was delivered on battlefields and are cited by scholars of risk communication, such as Spiegelhalter, as an inspiring example of a "strong tradition of using graphics to represent the frequency of events".[466] Towards the end of the 19th century, scientific positivism became very popular and with it a belief in the incontrovertible principles of cause and effect. Not just "Over the course of the 19th century, envisioning history in the form of a timeline became second nature", but the first applications of 'chronographic' methods to financial sciences in William Playfair's *Commercial and Political Atlas and Statistical Breviary* (1801) soon led to the field of social statistics.[467] The emergence of new techniques and technologies for the monitoring of events or occurrences *in time* had enabled the establishing of the causes for social phenomena, patterns in economics, odds at the game table and causes of accidents (see Chapter 2). There was always a cause for every phenomenon; it was just a matter of discovering it. Where regular patterns where found, new universal laws followed, allowing for many aspects of life to be governed or pre-empted. Hygiene, illness, violence, accidents: new methods for governing social life and work began to be introduced (see Chapter 1). This process of rationalization also introduced new standards for what might be conventionally considered universally valid truth, including new processes of standardisation.

Connected to these philosophical and technological transformations is the development of forms of data visualisation where time, alongside space, becomes something that can be rendered outside the frame of traditional chronological timelines. Spatial visualisations of recurring events, such as Auldjo's maps, enabled a transversal reading of history that literally cuts through traditional timelines and recombines events in a non-chronological order to prevent and manage risk. They had changed not just how time was understood, but also how it was visualised.

In conclusion, the positivist belief in science during the 19th century did not just prompt developments in statistics and probability theory, but also propelled new methods of data visualisation that were able to systematically monitor and visualise the frequencies of events in time. The impact of such methods is clear on a scientific and visual level, especially in regards to health, natural disasters or physical risk. Auldjo's map is an example of how data

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[465] Florence Nightingale, *Mortality of the British Army, at Home, at Home and Abroad, and During the Russian War, As Compared with the Mortality of the Civil Population in England*, (London: Printed by Harrison and Sons, 1858).
[466] David Spiegelhalter, Mike Pearson, and Ian Short. "Visualizing uncertainty about the future", *Science* 333.6048 (2011): 1393–1400.
[467] Roesemberg, *Cartographies of Time.*

from the past could be translated into images and used to protect people from disasters, and the same combination of time-space coordinates is employed today in the modelling of natural disasters

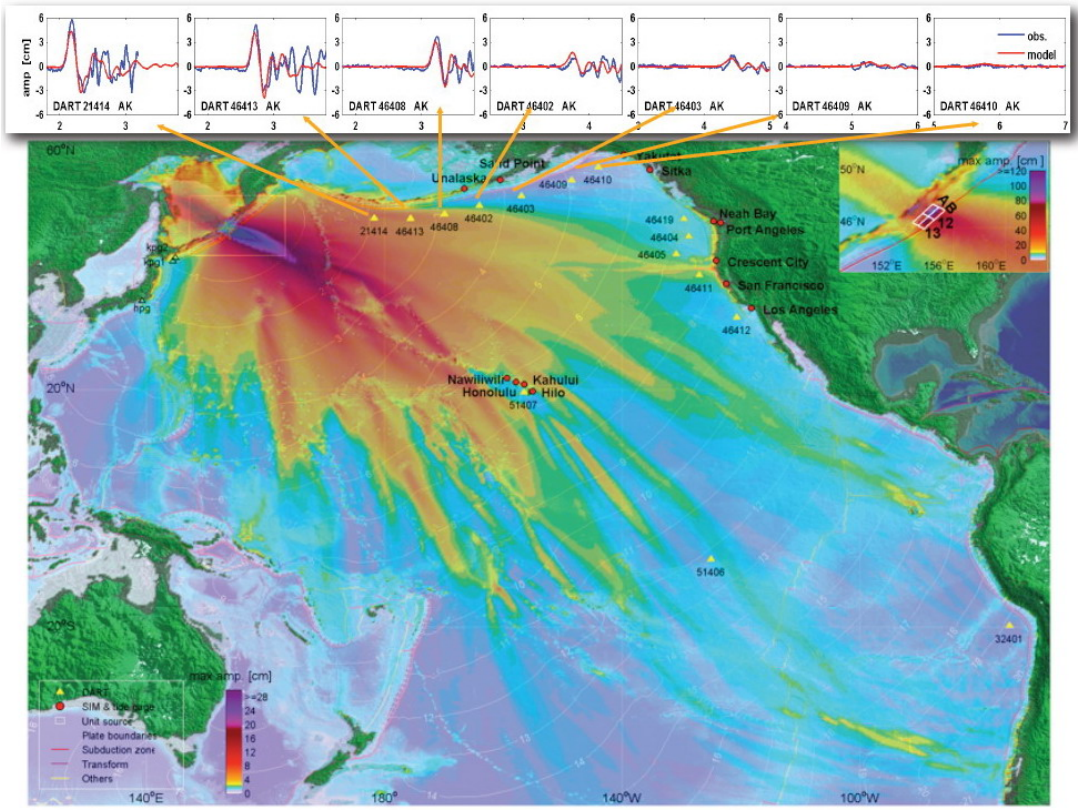

FIGURE 134 NOAA TSUNAMI FORECASTING SYSTEM. A PROPAGATION DATABASE FORECAST COMPARISON WITH DATA FROM DART® TSUNAMI BUOYS FOR THE 15 NOVEMBER 2006 KURIL TSUNAMI (RED LINE = MODEL, BLUE LINE = BUOY DATA) © NOA.

Developed by the National Atmospheric and Oceanographic Administration's Center for Tsunami Research (NOAA) in Hawaii, the image above is an example of such modelling techniques (Figure 133). It shows a comparison between a 'preliminary forecast model' and data from 'after the event' by focussing on the 15 November 2006 Kuril tsunami event (small graphs with red and blue lines). As the tallest and most dangerous waves are marked in darker colours (this tsunami fortunately did not provoke huge damages), the model also predicted their time of propagation (the concentric curves in white) pointing to the coastal areas under major threat. This modelling system is an essential diagnostic tool for NOAA, that, when an earthquake occurs, shares similar models with local costal agencies to help

them in planning their emergency response strategies.[468] Moreover, each image feeds into the NOAA Tsunami Propagation Database, a collection of tsunami propagation models based on 'pre-computed events' composed mostly of historical information, earthquakes data and observed tsunami amplitudes. As the organisation explains,

> These pre-computed events can be combined linearly to simulate arbitrary earthquake scenarios to provide a very fast forecast during an actual tsunami event. The accuracy of the Propagation Database has been validated with data from seventeen tsunamis, eight of which were assessed in real-time during events.[469]

The level of sophistication of such models is almost overwhelming for non- experts, but the map also manages to be quite self-explanatory, just like Auldjo's. What's quite remarkable about Auldjo's, moreover, is that his 'non-linear' visualisation of events comes at a time of positivist historicistic narratives and linear progression. On the contrary, NOAA tsunami forecasting models are perfect examples of today's attitude towards 'pre-emptive' archiving and the use of memory as an operational tool. Instrumental in this transformation toward a 'functionalist memory'[470] are the methods that, similar to Auldjo's map, have enabled us to identify regular patterns or frequencies and, thanks to their pre-emptive monitoring and 'spatial organization' of events, things and people, to predict reoccurrences.

Auldjo's map did not guarantee safety, but it did show that certain towns were safer than others, and also that nobody expected certainty from his conclusions. A whole infrastructure for the administration of such risk was absent at the time and the methods for calculating probabilities was still quite traditional.

Moreover, the innovative ability to visualise the re-occurrences of events in Auldjo's map is very much anchored to 'traditional' probability where any calculation is based on an elaboration of events that did really happen in the past. The sediments that Auldjo analysed, were in fact the material testimonies of past occurrences. As we will see, scientific, technological, political and economic transformation in the 20th century presented 'unprecedented' problems for decision makers in any field, especially where there were no

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[468] An example of such bulletins is available at "Destructive Tsunami Generated by Chile Quake", Fire EarthWW (blog), 27 February 2010, accessed September 10, 2019, https://feww.wordpress.com/category/pacific-tsunami-warning-center/.

[469] National Atmospheric and Oceanographic Administration Center (NOAA) "Forecast Propagation Database", accessed September 9, 2019 https://nctr.pmel.noaa.gov/propagation-database.html.

[470] In *Beautiful Data* Halpern has a lengthy and complicated discussion of Bergsonian notions of time, and Deleuze's reading of them and the cinematic apparatus to justify cybernetics' "functionalist memory". They are, however, not particularly useful, as I believe that the direct engagement with 'functionalist memory' becomes self-explanatory just by looking at the methods for visualising time that I have described.

pools of past experiences to tap into. These problems did not just mean that probability had to be calculated differently, but also introduced a whole new universe of visualisation and calculation techniques that were based on the 'virtuality' of the future. These will be the subject of the following paragraphs.

8.7 Risk as a *Means* to an End

The scientific euphoria of positivism did not last long, as intellectuals, mathematicians and artists in the 20th century began to criticise its determinism. The mathematician Poincaré (1852–1912) for instance believed that universal laws were just human conventions and wrote in 1914 that "Chance is only the measure of our ignorance".[471] The troublesome years that followed the notion of uncertainty gained prominence, and with it the debate about how to control it through risk. Poincaré's ideas, for instance, helped reformulate the notion of chance in terms of uncertainty, and Frank Knight (1885–1972) introduced risk as a quantifiable variable in decision-making processes as opposed to 'unquantifiable uncertainties'.[472] Rather than focusing on predicting the odds, economists Kenneth Joseph Arrow (1921–2017) and John M. Keynes, (1883–1946) introduced 'external measures' to contain the 'volatility' of the market, such as diversification, insurance or state intervention, which have dominated economics up to this day.[473] These new methods for managing risk no longer aimed at predicting negative events but at containing their harmful effects; they were necessary because, for Keynes, past events were just a small part of what informs probability.[474] Advocating for a completely different method for quantifying risk in his *A Treatise on Probability* (1923), Keynes preferred to talk about "propositions" rather than "events", saying that forecasts should be calculated according to "degrees of belief" about the future.

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[471] Henri Poincaré, "Chance", *Science and Method,* 1914, 64.
[472] Frank Knight, *Risk, Uncertainty and Profit*, (Wilmington: Vernon Press), 2017, First. Ed. 1921.
[473] Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk.* New York; Chichester: Wiley, 1998.
[474] Note that "events" was the word used by Keynes's predecessors in traditional probability theory, implying that forecasts must depend on the mathematical frequencies of past occurrences.

> if *events* in probability theory imply that forecasts must depend on the mathematical frequencies of past occurrences (…) *propositions* reflect a degree of belief about future events.[475]

These ideas had an extraordinary legacy in the years that followed. Writing in 1943, Norbert Wiener (1894–1964), argued for "purpose" and "teleology" as more efficient concepts preferable to causality.[476] Rather than acting (or behaving) *because* of one reason or another, he suggested, things and humans behave "purposefully" in relation to the "attainment" of goals. In the article *Behaviour, Purpose and Teleology* he wrote that: "The concept of teleology shares only one thing with the concept of causality: a time axis".[477] In an alternative to determinism, therefore, he suggested "negative feedback" as a continuous method for improvement and learning: a rehabilitation of the old 'trial and error method', embraced as a process for making new realities possible.

Not less radically, in 1944 John Von Neumann (1903–1957) and Oskar Morgenstern (1902–1977) published *Theory of Games and Economic Behaviour.* The book used mathematics to develop a model for economic growth, where the traditional methods based on calculating past frequencies were no longer sufficient and economic growth (or stagnation) would only be achieved with the competition of different actors and their ability to make "the best of a bad bargain".[478] To explain his theory, Von Neumann used the example of a simple game where a participant's probability of winning increases if they base their strategy on not losing, that is, they can predict (and anticipate) what their adversary will do to win. Another example is the Nash equilibrium which suggests that if none of the participants at a negotiating table is ready to drop their initial stance (in war, business or Brexit) they would rather avoid endorsing something that compromises their position: the current theatre of Brexit being a rather interesting example of this. The Second World War military operations and the arms race in the Cold War became a perfect manifestation of game theory. Working for the Los Almos US National Laboratory first, and later at the Manhattan project, Von Neumann was involved in important decisions and formulated the basis for his contributions to quantum theory as well as actively supporting

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[475] John M. Keynes, *A Treatise on Probability*, (London: Macmillan, 1996). Cited in Bernstain, *Against Gods,* 225.
[476] The philosopher Judea Pearl has recently rehabilitated the concept of causality across a number of disciplines. I will return to his argument later in this chapter.
[477] Arturo Rosenblueth, Norbert Wiener, and Julian Bigelow, "Behavior, purpose and teleology." *Philosophy of science* 10.1 (1943): 18–24. Cited in Halpern, *Beautiful Data,* 45.
[478] Rather than just counting past disasters and making predictions based on their frequencies, Von Neumann suggested that what matters the most is what the player *will* do according to the specific purpose of not losing. Neumann, Johann Von, and Morgenstern, Oskar. *Theory of Games and Economic Behavior.* 1944. Citation from Bernstein, *Against God,* 242.

the MAD approach. As the Nuclear bomb was a *new* weapon there were no statistics from the past available (let's call them the "odds at the betting table") and in any case they would have no longer been sufficient. A new expanded knowledge was required to monitor and prevent the actions of the enemy (or competitors), and this knowledge came from the collection and use of data.

Under these new conditions, where the calibration of risks in the future (that is, the need to deter a nuclear retaliation) had become a *means* to an end, the calculations of costs and benefits could no longer rely on traditional methods to calculate probability on the basis of the frequencies of known events. Instead, the simultaneous monitoring and feedback loop of an increasingly large amount of data (the players in a game) became available. To continue with the metaphor at the basis of game theory, the statistics from the past (the odds at the betting table) were no longer sufficient as it was necessary to monitor what others were doing in order to prevent their actions and, ultimately, to make informed decisions. In other words, more information meant less risk.

To recapitulate, Game Theory (or Decision Theory) and Cybernetics complicated everything: their understanding of uncertainty in terms of 'complexity' did not stop forecasting but prompted studies that used numbers and mathematical methods to explain physical, social and psychological phenomena. The sciences that emerged after the war from this process generated a renewed interest and trust in numbers: not so much for elaborating past frequencies but to evaluate options and utilities. This was a future oriented, or 'teleological' method that justified predictions that were not based on causes, but on the objectives that one wanted to achieve. Decision Theory emerged as new field, and a model for decision making; the diagram became the symbol of a changed understanding of probabilistic thinking that no longer simply evaluated things from the past but also the options in the future. To help in making decisions in this universe of complexity, traditional probability was no longer enough: in this new game, to know what the other players were doing was the recipe for success. This required training an 'expanded vision' through new modes of 'visualising complexity' that made the science of forecasting remarkably more complicated by producing new forms of visualisation and measurement. As we will see, this new game was very evident in the theatre of the free market.

The new methods for monitoring and collecting data had radically changed the way decisions were made and the consequences of this are evident today. If Auldjo's map allowed for predictions that were based on events that had really happened, contemporary decision-making systems are less anchored to the past and focused on the 'modelling' of what may happen. Car insurance premiums, for example, are quantified according to postcodes even if people living in accident-prone areas are not necessarily more dangerous

drivers: they cannot completely control other cars and therefore the *probability* of their being involved in an accident rises, together with their insurance premium. The same could be said for drivers who are women and so on.

This is evidence of how *risk* as a means for decision making has changed the infrastructures that organise and govern life. What in Auldjo's time would have been useful, advisory information, has become a '*prescription'*, a normative rule with which everybody must comply. But the transformation is even deeper, lying at the very basis of what is today considered 'rational'. No longer concerned with finding causes in the past (causalism) but rather *means* for the future, contemporary operational structures are governed by a strange form of teleology where the possible 'risk' in the future determines what should be done in the *here and now.* This is a different kind of determinism, governed no longer by a logic of causality, but by one of risk. This is what predictive technologies, and risk in general, have done to our sense of time. The end justifies the means.[479]

As I have shown, in the first half of the 20th century, theorists such us Poincaré, Knight or Keynes changed how probability was conceived by introducing the notions of uncertainty and volatility that had great impact in the theory of economics. The political, philosophical, moral crisis of the war followed, and in these days of even greater uncertainty different approaches emerged to suggest how turbulent times should be managed. Keynes proposed an economic theory that calculated probabilities according to propositions in the future rather than past events. Von Neumann devised complex computational methods that monitored and calculated (and or influenced) the behaviour of complex systems. As we will see, in both cases, a new 'larger' vision was required, a vision that could not just take into account past occurrences but be able to monitor as much as possible. The rush for the accumulation of data began. This is exactly the point where Halpern's book begins: the time of cybernetics and early computers that, with their 'procedural rationality', changed mainstream 'vision' irreversibly.

One of the consequences of these ideas on a visual level was that the so-called spatialisation of time shown in Auldjo's map, became intrinsically connected in the post-war period with increased levels of 'capacity' in the methods for capturing and visualising information. An enhanced 'retinal' perception enabled people in power to deal with more complex forms of organisation (and systems): on one hand it was able to monitor what was simultaneously happening at very large distances, and, on the other, to identify trends among the visual 'noise' produced by this accumulation of data. The same 'high resolution

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[479] Machiavelli's *Art of War*, to which this proverb is improperly attributed was undoubtedly an inspiration for game theory.

vision'[480] today enhances the infrastructures for the control and management of risk through the morphing of traditional time and space coordinates. It is able to zoom in and out with agility from the microcosm of bacterial behaviours thorough microscopes, to the surveillance techniques enabled by panoptical vision. It manifests itself through the extraordinary combination of data for stock market traders enabled by applications such as the Bloomberg Terminal, or via the sophistication of scanning and capturing techniques to visualize space, weather or IAR objects that threaten the planet. It predicts the future by shifting the points of view.

More importantly, this enhanced vision goes beyond the ability to spot (or produce) the patterns of probability that are essential to today's 'rational' and informed decision-making protocols. If data from the past is not available, then the colonising of the future through computing simulation techniques and algorithmic intelligence is there to make up for the absence of knowledge. Contemporary vision (that is, the combination of visualisation and perception) has found in diagrams, graphs and statistics visualizations, the preferred tools for decision making under uncertain conditions, whilst photography or cinema are progressively losing their value as evidence.[481] They constitute the operational language necessary to the diagnosis and assessment of risk.

8.8 A View from Above: Visions of a Stock Market Trader

The diagnosis of risk today, increasingly relies on a panoptical vision which is exponentially becoming a risk in its own right. The implication of this amplified vision in terms of surveillance are well investigated in an artistic context, as I have mentioned earlier in this chapter. Rather than focussing on the effects of surveillance on privacy and freedom, however, I shall investigate here "panoptical vision" (and its diagnostic ability) on the purest level of the image and its formal qualities. The analysis of Big Data today, requires so-called smart visualisation techniques that are able to organise events, things and people according to patterns of probability. Curves, diagrams, rhizomatic structures, maps or any other pattern

[480] By 'vision', I mean the infinite pool of images that we can access cognitively.
[481] This thesis will not develop this aspect, which I believe is a productive avenue for further future research.

provide clarity through chaos, and in doing so, they theoretically inform better decisions. I will now put these ideas to test by proposing a visual comparison of a screen-shot from Bloomberg Terminal with Andreas Gursky's stock exchange photographs.

Let us firstly consider the Bloomberg Terminal (Figure 135). The computer software system featured, among others, in a recent exhibition at the Victoria and Albert museum titled *This might be the future.* It's worth reproducing here the full content of the exhibition label,

> Sitting on the desks of around 325,000 of the world most influential decision makers, the Bloomberg terminal is a modern icon of finance. First launched in 1981, long before PCs and the internet became a standard the Bloomberg terminal connects traders, bankers, executives and government officials to real time data and analytics. The Bloomberg Terminal displays information on stocks, news and political insight. Today data like this is considered by many to be more valuable than commodities like oil.

FIGURE 135 BLOOMBERG TERMINAL, BLOOMBERG 2018. PHOTO TAKEN AT THE VICTORIA AND ALBERT MUSEUM, LONDON

The double screen of the Bloomberg terminal, presents a remarkable amount of data for one person to quickly assimilate and make decisions upon. News of financial transactions are recorded (or captured) as they happen and visualised as percentages, curves, flowcharts and graphs to help traders making informed decisions about their investments. In short, they 'calibrate' risk. To help traders predict where the market is going and to bid accordingly, the system monitors the actions of each one of its users and feeds them back to the community of users. It's an extraordinary lens where each individual action 'counts', as those subscribing to the terminal can see but also be seen (even though they are just 'numbers' in the larger schemes of things). If it wasn't for the fact that each trader (or system user) has agency and can influence the whole picture with his or her betting choices, this might sound like a dystopian system of surveillance. Indeed, it's a perfect playground for Game Theory, where each one of the players can win not just by playing the odds, but by watching out for competitors' actions, predicting their moves and anticipating them.

When Bloomberg terminal was introduced, the stock-exchange was still functioning in a trading pit, an arena where traders contended their best investments as if they were in a gambling game. They would look at data on large screens, but also 'sense' what was going on, argue with their colleagues and try to strike the best deal. With this in mind, we might see Bloomberg terminal as a perfect tool for making informed decisions, the incarnation of a procedural rationality that has rejected blind guessing to rest in the powerful hands of big data. And yet, we should also ask, does *more* information *really* means less risk? Andreas Gursky's acclaimed photographs of the stock trading pit in the 1990s shows that this is an assumption with many facets (Figure 136, Figure 137, Figure 138, Figure 139).

FIGURE 136 ANDREAS GURSKY, *HONG KONG STOCK EXCHANGE* (DIPTYCH), 1994. ONE OF TWO COLOUR PRINTS.

FIGURE 137 ANDREA GURSKY, *CHICAGO MERCANTILE EXCHANGE*, 1997. CHROMOGENIC PRINT.

Gursky began taking photographs of the stock market trading floors in 1990, just after the Big Bang which in trading jargon indicates the time when market became deregulated and electronic desk trading was introduced. Big Bang also meant that monitors, computer terminals and remote bidding (and more recently automated bidding) replaced traditional methods based on direct interaction and open outcry. Already an acclaimed photographer, Gursky was known for his photographs of architecture and landscape where he adopted an 'enhanced' point of view. He combined multiple images taken from different vantage points to render panoramic overviews that are large in scale and hugely detailed. The trading pit represented a perfect subject for Gursky's favourite birds-eye views: with so many people compressed into a unique space, often wearing similar clothes or colour coded according to what they are trading, the stock brokers become unities in the changing patterns of human activity, isotopes that manifest the laws of large numbers in action to reveal the complex networks of human relation. It's a recognisable aesthetic, simultaneously spectacular and sinister like the parades organized under the consolidation of totalitarian European regimes, or like Albrecht Altdorfer (1480–1538)'s famous war scenes, such as *The Battle of Issus* (1529): the replication of individual unities produces a visual effect of mathematical sublimity where the micro and macro cosmos are combined.

FIGURE 138 ANDREAS GURSKY, *CHICAGO BOARD OF TRADE*, 1997. CHROMOGENIC PRINT.

There is, moreover, a compelling difference between the images and the different trading floors that they depict. *The Hong Kong Stock Exchange* diptych from 1994 (Figure 136), for example, seems very linear and organized as rows of white desks form regular, linear patterns in contrast with the brown red carpets and the tamed traders in matching colour uniforms. Pointing toward the wall at the end of room, they give a sense of a cavernous tunnel where human industriousness is performed via the interaction with the terminals. The contrast of this image with the *Chicago Mercantile Exchange* (1997) is extreme (Figure 137). What we see here is the theatre and spectacle of the last trading floor in the world to use traditional bidding methods (until 2004). As stock exchange rates are visible on enormous screens, the traders engage in an operatic gestural dialect, forged by traders over the course of the centuries: open palms indicate the willing to buy — three, four, five, they bid faster and smarter than their competitors. But the most interesting of these images is perhaps the least aestheticized, *Chicago Board of Trade I* (1997–1998), the only one to be realised in a single shot (Figure 138). The photograph is one of unorganised chaos where gestures, screens both big and small, colourful uniforms and papers on the floor are hardly discernible from one another in the 'visual noise'. Gone are the regular patterns of the Hong Kong image and the recognisable reiterations of a gestural vocabulary in the 1997 image, and in its place, we see a spectacular manifestation of uncontrollable relations, to use Warren Weaver's terminology, a problem of "disorganised complexity". [482]Observing a picture of Bloomberg Terminal alongside Gursky's photographs, we can see what happens in and outside the interface simultaneously. The terminal itself appears as a window into another dimension, a technology that both monitors and calibrates decisions. And yet in the frenetic, unorganised arena on the other side of the interface, human clumsiness in dealing with predictive technologies seems to be parodied.

Taken over 20 years, the images illuminate the human face of the trading market, and simultaneously show the relation we have to the 'enhanced' view provided by the terminal. The chaos (or noise) pictured in the image contrasts with the orderly structure of Bloomberg Terminal. And yet the images seem to reveal how we struggle to discern a lesson from such complexity and to process this amount of information (if not contemplate its beauty). More information, then, may not necessarily mean less risk especially if we consider the descending parable of the trading profession in relation the recent financial crises and the Occupy Wall Street movement. These events have shown to the world the failures of teleological assumptions about risk and decision making. Regardless of how much

[482] Weaver, "Science and complexity."

information one may have, basing actions on what one aims to achieve (and not on what one can achieve) may not always bring the best results.

This is not the lesson that stock traders have learned from such experiences, however. As investment and gains continue to be based on 'debt', which is seen as the main engineering force that keeps things going, the focus has been (and remains) on the difficulties of interpreting data trends and patterns in the face of an overwhelming amount of information. Returning to the example of star gazing, it is almost as if the stars are to blame when predictions based on their interpretation do not reflect what really happens. It is, in a way, just a matter of recalibrating risk according to what one can actually see.

In 2009, more than a decade after *Chicago Board of Trade I*, Gursky returned to the negatives and used digital post-production to produce a new image, *Chicago Board of Trade III (1997–2007)* (Figure 139). The retouched shadows are darker in this image, and we can see individual figures and gestures with more clarity. From the noise of information, moreover, some patterns emerge: spirals and diagonal grids become the geometries of the image, the inner structures made recognizable by the process of post-production. The image is much clearer, reflecting an optical resolution (or sensibility), and new, more regular patterns appear that allow a different reading of the scene that it depicts. "Stripes of colour blend and intermingle like in a Jackson Pollock's paintings" commented the art historian Alexander Branczic.[483] Indeed, it is worth looking back at the original image that I have referred to as presenting forms of unorganised complexity. In comparing it with the new one, we might observe how in the later version new bonds and connections have been formed. The two images show the difference between a disorganised and an organised from of complexity.

[483] Sotheby's, "Contemporary Art Evening Auction Highlights – Andreas Gursky", 14 January 2013, accessed August 9, 2019, https://www.youtube.com/watch?time_continue=40&v=F2E68Jz6gPY.

FIGURE 139 ANDREAS GURSKY. *CHICAGO BOARD OF TRADE III*, 2009. CHROMOGENIC PRINT

More than half a century has passed since Weaver's speculations about the future of science, and yet we can now fully observe the materialisation of such problems in the age of big data. The complex interconnectedness of modern times, writes design theorist Manuel Lima, "requires new tools of analysis and exploration, but above all it demands a new way of thinking. It demands a pluralistic understanding of the world that is able to envision the wider structural plan and at the same time examine the intricate mesh of connections among its smallest elements. It ultimately calls for a holistic approach, it calls for network thinking".[484]

To summarise, in resolving the problems of organised complexity, we require an enhance optical vision where interactions become distinguishable and mappable. This is just what Gursky did in his later photograph: he recalibrated vision to gain aesthetic control. In the real world of financial investment, however, this is not always possible, since the ability to discern patterns of probability in the market behaviour cannot be resolved in post-production.

[484] Manuel Lima, *Visualising Complexity,* 45–46.

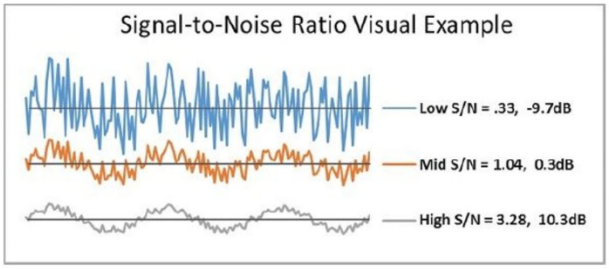

FIGURE 140 ILLUSTRATION OF THE "SIGNAL TO NOISE RATIO" FROM *CONQUERING THE SEVEN FACES OF RISK,* A TRAINING MANUAL FOR STOCK MARKET TRADERS.

Claude Shannon had presciently understood and attempted to solve similar kinds of problems with his "Signal-to-noise Theory". Developed when Shannon was working for the Bell Phone Company, the theory was introduced in two famous articles: *A Mathematical Theory of Communication (1948)* and *Communication in the Presence of Noise (1949).*[485] In order to optimize radio communication between far-reaching places, Shannon realised that background noise and glitches could be minimised by reducing a wide range of sounds into a binary system of 1 (high) and 0 (low) frequencies. These sequences presented a much more defined sound resolution. This discovery enabled better communication by introducing the concept of binary digitisation of information. Shannon also developed a mathematical formula, the *signal-to-noise ratio*, whose impact extends from sound into the foundation of modern information systems and the Internet. The formula allows a calculation of the *probability* that a signal can be detected and recognised among other noisy information, be that through sound beats, or images (e.g. low resolutions images or TV snow) or market trends. The signal-to-noise ratio has, in fact, been in use among financial traders as a decision-making tool to identify trends in a noisy market. Featured in a manual for risk traders titled *Conquering the Seven Faces of Risk*, (Figure 140), shows how the signal-to-noise ratio is directly proportional to the probability of interpreting a message correctly. As the line graph at the bottom appears to have a much clearer trajectory, the book author states,

> the 'signal-to-noise ratio' determines the probability of making the right decision when interpreting noisy data. This fundamental electronic communications principle is also the primary contributor to better strategy performance. [486]

[485] Claude E. Shannon, "A mathematical theory of communication." *Bell system technical journal* 27.3 (1948): 379–423. Claude E. Shannon, "Communication in the Presence of Noise [1949]." *Proceedings of the IRE* (1993): 160–172.
[486] Scott M. Juds, *Conquering the Seven Faces of Risk: Automated Momentum Strategies That Avoid Bear Markets, Empower Fearless Retirement Planning.* (Cork: Book Baby, 2018).

The signal-to-noise ratio, then, enhances our pattern recognition capacity: the more specific we are in defining 'what we are looking for', the easier it will be to find it among a large quantity of data, regardless if what we use are search engines, algorithms, or the calibration of shadows in Gursky's edited photo.

The signal-to-noise ratio, moreover, measures a different kind of probability from the one that I have described so far, and it manifests a different understanding and use of time. No longer concentrated on visualising the past to help understand the future, this probability sits in the compressed dimension of the feedback loop, where stimulus and response are instant, almost simultaneous, real-time operations enabled by a process of automation. The temporality of such pattern-finding (or creating) ability is the present, a present that accumulates information, uses it, and then moves on to the next scanning process. In this present, increasingly adaptable forms of life and automation are preparing — for better or for worse — by progressively eliminating negative feedback and learning from their errors. And because decisions are made in this very present on the basis of a future that may never be, the data-world sits in a cloud, as a backup waiting to be recalled at the earliest convenience. But how many futures are lost in this 'deterministic' decision-making process? How many futures are denied existence because they don't fit the pre-emptive logic of our automated systems? How many surprising opportunities and insights are we missing out on because of our tautological obsession with planning? It is worthwhile here to recall O'Neil considerations on *Weapons of Maths Destruction* and remember that historical moment of turmoil (the Second World War) when scientists, economists and mathematicians in the Western world argued for a "teleological" (pragmatic) rationality where goals, objectives and targets are all that matters. As O'Neil pointed out: "models are constructed not just from data, but from the choices we make about which data to pay attention to — and which to leave out. Those choices are not just about logistics, profits and efficiency. They are fundamentally moral".[487]

In support of the moral issues raised by O'Neil, the scientist Judea Pearl has recently rehabilitated the concept of causality across a number of disciplines as opposed to the teleological thinking adopted in AI.

> Can any of these AI systems answer simple questions about the tasks they perform? Or are they simply converting statistics and probabilities into decisions?

[487] O'Neil, *Weapons,*218.

> Misunderstanding these concepts sometimes leads to the misinterpretation of the capabilities and limits of current AI technologies.[488]

Pearl's argument is that if purposeful (or goal-oriented) thinking leads to informed decision making, such as for AI, the opposite process is not as straightforward. That is, it is impossible to entirely isolate causes from observing the behaviour of large amount of data. In his own words "no amount of data can ever entirely isolate a cause".[489] This is a faculty, for Pearl, that only "modern humans" possess, "the ability to think about counterfactuals and imagine alternate worlds", that is, the capacity to see what might have been if different choices had been made. This kind of thought is, for Pearl, not only at the basis of scientific thought, but of moral behaviour.

Finally, it is worth considering the encounter with probability visualisations from an aesthetic perspective, as an expression of the "mathematically sublime".[490] The protocols relying on risk calculations are facing increasing pressure and criticism due to an ever-expanded understanding of uncertainty and incertitude.[491] Insurance firms are struggling to incorporate risks such as climate change into their protocols: how can they *calculate* and *quantify* its damages?[492] The propensity to grasp patterns of probability in the multifaceted relations of the human, natural and technological world might just be the effect of a very human need for reassurance. The ability to compute knows no limits, but as Kant argued, human cognition struggles to grasp such an infinity. We struggle to catch up with our very own computing and forecasting methods and so too does reality (whatever that might be), leaving us in awe of what we cannot control. This technologically enhanced perception of scale and duration might have something in common with what Kant called "mathematically sublime". A mixture of wonder and cognitive frustration arises when we encounter the limits of our understanding. In spite of the overwhelming sequences and correlations of numerical patterns in computing, and in spite of the extraordinary evolution of data capturing for space and existential survival, is there a limit to how far one can go on measuring? The more we count, calculate or find patterns, the more we discover an irrevocably complex reality.

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[488] Ben Dickson, "The Book of Why: Exploring the missing piece of artificial intelligence", book review, Tech Register, 9 December 2019, accessed December, 10, https://www.techregister.co.uk/exploring-the-missing-piece-of-artificial-intelligence-techtalks/.
[489] Judea Pearl and Dana Mackenzie, *The Book of Why: The New Science of Cause and Effect,* (London: Penguin, 2018).
[490] Kant, *Critique of the Power of Judgment*, 134.
[491] Andy Stirling, "Politics in the language of uncertainty".
[492] See introduction and Tom Philip Herbstein, "Insurance and the Anthropocene: like a frog in hot water", (PhD diss., University of Cape Town, 2015).

8.8 Conclusion

The images presented in this chapter construct particular understandings and diagnoses of risk situations: some of them come from risk management processes, some from the history of science illustrations, some are created by artists and others are designed to solve particular problems. What they have in common, however, is that they are constructed around specific principles. First, they are not obtained through arbitrary imaginative processes but are the manifestation of some form of mathematical or statistical calculation (they are therefore *visualisations of data*). Second, they are concerned with relations between the small units and the larger schemes of things (in this sense they are *structural*). Third, they are situated in the dimension of time: a time that is not durational but made up of frequencies and recurring patterns (in this sense they are *predictive*). These three factors, I conclude, make up for the three key features in what I would call an 'aesthetic of probability'. The aesthetic of probability, I have also argued, is intrinsically connected to the predictive (or pre-emptive) nature of risk calculations. If risk is the 'evidence-based' estimation of what might be (evidence, meaning data from the past or from simulations), the aesthetic of probability is the 'from' through which such abstract calculations are translated into sensible experience. The encounter with this 'aesthetic of probability' is described in Andreas Gursky's photographs of the stock exchange: little humans in business, competing with each other and gambling with their future In a time of big data, predictive analytics and scenario modelling the need to understand and recognise the procedural features of probability through their visual manifestations is as urgent as ever if we want to untangle the complex interests and politics that they often serve. Society and economics are so sublimely complex now that we often have to have a priest-like faith in experts or fall back on our own prejudices.

9 CHAPTER. Computing Futures: Scientific Speculations and Artistic Endeavours

The scientist does not study nature because it is useful to do so. He studies it because he takes pleasure in it, and he takes pleasure in it because it is beautiful. If nature were not beautiful it would not be worth knowing, and life would not be worth living. I am not speaking, of course, of the beauty which strikes the senses, of the beauty of qualities and appearances. I am far from despising this, but it has nothing to do with science. What I mean is that more intimate beauty which comes from the harmonious order of its parts, and which a pure intelligence can grasp.

Henri Poincaré, *Science and Method*

9.1 Introduction

In the previous chapter I discussed images where numbers (or data) are translated into structural visualisation, maps and patterns. I have argued that such schematic images constitute not just an essential tool in the diagnosis of risk, but are also aesthetically significant: they show not just how risk is produced, but also how we experience it. I will, in this final chapter, focus more directly on the artistic contributions (and problematisations) towards visualising probability. If artists have engaged with algorithms, data visualisation and predictive technologies, I will suggest, that it's not just because of a fascination with quantitative visualisations but an interest in critically understanding how they affect life. In the previous chapter I discussed an example of artistic engagement with pattern recognition in Andreas Gursky's *Stock Exchange* photos. In this chapter I will examine computational methods that are hand-drawn (Duchamp, Kunz, Horwitz), assembled (Troika) or produced by Artificial Intelligence (Hito Steyerl). I will ask whether these works can stimulate alternative critical positions towards the logics of quantifying and managing risk today.

In doing so I will ask whether the reorganisation of 'vision' into 'patterns of probability' (that is, functional to the diagnosis of risk), might not be introducing a form of 'prescriptive' knowledge, one that forecloses the possibility for many other, incalculable futures to *just* happen. Is not our reliance on prediction-based decisions becoming too prescriptive? With their ability to identify patterns, for example, algorithms have not just become extraordinary tools for decision making but have in many cases become 'the' decision makers through processes of automation that collate past present and future together. In that sense, they reorient and legitimise contemporary thinking via computation and redistribute our perception of the world according to what 'logically' should look like, a process of modelling that, as Hito Steyerl's recent work exemplifies, is rather incomplete and uncannily amorphous.

In his important book about the possibilities (and risks) of artificial intelligence, *Life 3.0*, the physicist and mathematician Max Tegmark presents the following definition of intelligence,

> Intelligence = the ability to accomplish complex goals[493]

This definition of intelligence clearly reflects a mentality embedded in the philosophical and scientific ideas of cybernetics and computing, but also excludes the existence of other forms of intelligence that are not utilitarian, nor oriented towards problem solving.[494] Tegmark's

[493] Tegmark, *Life 3.0,* 50.
[494] Not to mention that there are other examples in nature (such as flying) where complex goals are achieved without so-called intelligence.

definition is plausible when I read his extremely clear account of how computers (and neural networks) work: they essentially resolve problems such as how to get from A to B through sets of open and closed doors (time steps); their memory is the mapping of this labyrinthine path through uncertainty. To this end, computation is a mapping system for probabilities (in the future), in a sense that once an algorithm has been identified, it has the ability to calculate the position where a specific byte *will be* (*or has been*) in a specific moment in time; it finds patterns through the randomness of possibilities. This definition, however, might not adequately describe human (and animal) reasoning and decision making, processes that are not always necessarily driven by the achievement of goals but by different forms of pleasure and enjoyment of their present condition.

What happens if computation is not used merely to achieve goals (as a mean to an end) but as an open ended, aesthetic, visualisation process? Artistic practice is one example of such 'uninterested' employment of computational methods, from the most rudimentary and empirical to the most advanced. Art's lack of direct utilitarianism or practical problem solving makes it a particularly relevant means of illuminating the human condition in general and, in this context, exploring aspects of our coexistence with (and dependence on) decision-making models based on probability and predictive technologies.

9.2 Games of Chance or Patterns of Probability?

Even before the invention of computers, but when the first risk-based decision-making models were developed, artists experimented with computational methods and chance.[495] Much has been written about those "chance procedures" in art but they have rarely been linked with the historical development of probability and its role in decision making. Mostly adopted for problem solving and utilitarianism, probability is a tough territory for the humanities due to its strictly mathematical and complicated nature. And yet many refer to probability as an art rather than a science.[496] The following will focus on the cross-fertilisation of probability calculations techniques and aesthetic practices, starting from early computational methods in Western art and questioning how they have negotiated notions of chance and probability. As we will see in this section, artists' engagement with the procedural rationality of numbers does not necessarily support positivist ideas.

My analysis can only start with Marcel Duchamp (1887–1968)'s seminal work *Three Standard Stoppages* (1914–16) (Figure 141).[497] Influenced by Henri Poincaré's ideas about *chance* and conventional systems of time, Duchamp transposed a critique of the scientific and political determinism of the great mathematician (see also Chapter 8) into an artistic context. [498] At a time when positivist scientists were concerned with finding regular patterns and reoccurrences in natural and social phenomena, Poincaré demonstrated that measurement devices and calculations (such as the measurement of time) have a pure conventional value. In line with such ideas, Duchamp devised an experiment to demonstrate randomness rather than regularity and used the standard metre conserved in the Parisian library as an example of the arbitrariness of universally accepted measurement devices.[499] He wanted to reimagine how long a metre could be, and instead of platinum, his metre was made of malleable strings.

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[495] The main ideas expressed in Frank Knight's seminal *Risk, Uncertainty, and Profit* (1921) were formulated in his doctoral thesis in economics at Cornell University, *Cost, Value and Profit,* which was completed in 1916.

[496]These include Richard Jeffrey, *Probability and the Art of Judgment*, (Cambridge: Cambridge University Press, 1992) and Richard W. Hamming, *The Art of Probability*, (CRC Press, 2018).

[497] This work was featured in *Risk*, the exhibition I curated at Turner Contemporary. For an extensive analysis for this work see Dawn Ades, Neil Cox and David Hopkins, *Marcel Duchamp*, (London: Thames and Hudson, 1999),78–79; Herbert Molderings, "Objects of Modern Scepticism", *The Definitively Unfinished Marcel Duchamp*, ed. Thierry de Duve (Cambridge, Massachusetts: MIT Press 1991), 243–65, and Arturo Schwarz, *The Complete Works of Marcel Duchamp,* Vol. 2. (London: Thames and Hudson, 1997), 594–96.

[498] Henri Poincaré, "The Measure of Time", *The Foundations of Science*, (New York: Science Press, 1913), pp. 222-234. Henri Poincaré, "Chance", *The Monist* 22.1(1912): 31–52.

[499] In 1889, the International Geodesic Association distributed 30 standard metres made of platinum-iridium across the globe.

The experiment consisted of tracing on a black canvas the random shapes obtained by dropping three strings of one metre length each from the high of one metre. He then used the shapes as a template for cutting three pieces of wood and encased the results of his experiment in a box that he then labelled as "canned chance". The 1914 box also contained some notes where he explained that the experiment was made "to imprison and preserve forms obtained through chance, through *my* chance" and a statement about "The Idea of Fabrication",

> If a straight horizontal thread one meter long falls from a height of one meter straight onto a horizontal plane twisting as it pleases and creates a new image of the unit of length.
>
> 3 patterns obtained in more or less similar conditions: considered in their relation to one another they are an approximate reconstruction of the measure of length.
>
> The 3 standard stoppages are the meter diminished.[500]

Even though Duchamp considered the work one of his *ready-mades, Three Standard Stoppages* is a caustic exercise in metrics where the artist monitors, visualises and standardises the random shapes of a piece of string falling on a surface, although in reality such possibilities are infinite. Since Duchamp's metre changed *every time* it was dropped, he could demonstrate that there is no such thing as a universal standard metre. Such rebellion against determinism was not just conceptual but aesthetic, for it formally activated a game of chance as a *method*.

Critics on several occasions have referred to *Three Standard Stoppages* as the artwork that inaugurated "chance procedures in art".[501] Effectively, Duchamp submitted the aesthetic control (something that at the time was 'of' the artist) to the mercy of chance, and defined randomness as a precise artistic choice. He allowed an element of uncertainty to play in his work by delegating to gravity the agency to determine what shape the falling threads designed. Moreover, it is the artist's use of computational methods to "imprison" chance that is of prime interest to us here. Effectively, Duchamp's experiment consisted of recording three different time-steps on a canvas, a sampling process that showed how things change over time (every time the 'same' experiment was repeated it would bring different, unpredictable results). This process is one of monitoring occurrences *in time* that not only emulates scientific observational methods, but also their mapping and visualization techniques. Duchamp used "his" meters as a template for other works, including overlapping

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[500] These notes come from Duchamp's Box of 1914. His italics. Quoted in Marcel Duchamp and Arturo Schwarz. *Marcel Duchamp*, (New York: H. N. Abrams, 1975), 595

[501] Herbert Molderings, *Duchamp and the Aesthetics of Chance: Art As Experiment*, (New York: Columbia University Press, 2010). See also Margaret Iversen ed., *Chance: Documents of Contemporary Art* (London: Whitechapel Gallery and Cambridge, Mass: MIT Press, 2010).

them in a diagrammatic arrangement over an older painted canvas. The work, *Network Stoppages* (2014), remarkably prefigures the formal qualities of structural visualisations that I have discussed in the previous chapter. Nevertheless, Max Ernst's experiments with Lissajous figures in 1945 (Figure 142) and Emma Kuntz's oracular drawings made by tracing the patterns of an oscillating pendulum are examples of similar procedures. The artist sets the parameters for an experiment to be undertaken then monitors their results over time and writes them in a way similar to musical notation. If probability, in broad terms, is the study (or science) of the chances of an event occurring, then Duchamp's experiment is a "game of probability" as much as a chance procedure: the *systematic* and *controlled* observation is designed to enable chance (or regularities) to emerge.

A similar process is also evident in other *homages* to indeterminacy in art identified as chance procedures. In John Cage's *Changes and Disappearances* (1979–82) (Figure 143), for instance, different prints were made by the modular repetition of basic forms dictated by a complex system of questions and answers that Cage methodically recorded.[502] Even if Cage's intention was to mirror the infinite possibilities of chance-dependent patterns in nature, the work appears far from disordered, with his modular and exacting repetition of straight and curved lines. It seems as if the systematic nature of his working methods had produced an underlining structure that shows mathematical order. Was this a "natural" order, or was Cage's working method what determined its regularity? Cage's working methods were, in fact, based on counting, sequencing and the use of computers as much as mark making. His modular systems were somewhere in between Duchamp's games of probability and Halpern's "procedural rationality": in contrast with the randomness of shapes, there was the controlling, systematic monitoring of the artist.[503]

"Chance brings us closer to nature in her manner of operations" Cage said in a well-known quote.[504] "The whole world is based on chance (…) or at least is a definition of what happens in the world we live in" wrote Duchamp in his later life.[505] These artists have

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[502] In an earlier work Cage had consulted I Ching to choose the notes for the composition of his *Music Of Changes*. (The ancient oracular system has become a 'prescriptive' agent in his compositions.

[503] Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945*, (Durham, NC: Duke University Press, 2014), 21.

[504] Quoted in Lucy Lippard, "Introduction to 557,087" in *Conceptual Art: A Critical Anthology*, eds. Alexander Alberro and Blake Stimson, (Cambridge: MIT Press, 2005). This text is a transcript of the introduction to the catalogue for *557,087* an exhibition at Seattle Art Museum (5 September –5 October 1969) which was the first of Lippard's acclaimed 'number Shows', that took their name from the number of inhabitants each city had at the time. Lippard's introduction consists of twenty 4" x 6" index cards in random order; the catalogue as a whole consists of ninety-five text cards. The show and exhibition catalogue were subsequently retitled "955,000," when they travelled to the Vancouver Art Gallery (13 January–8 February 1970).

[505] Marcel Duchamp, Michel Sanouillet, and Elmer Peterson. *The Writings of Marcel Duchamp* (New York: Da Capo Press, 1989), 80.

studied the 'frequencies of events' but not in order to find regularities and possible predictions, but as an homage to the irregularities that mark the patterns of existence. For them, recording and producing 'new data', counting and mapping were not a means to forecast future trends but to celebrate the marvels of indeterminacy, unpredictability and randomness. Cage could have not made this intent clearer by choosing *Diary: How to improve the world (you will only make matters worse)* as the title of one of his published diaries.[506] His account of the thinking behind the title in a 1990 interview with composer Henning Lohner speaks for itself,

> I took down a book of Kwang-tse which has a passage in it about Hyung Mung, which is a name for chaos, and he was one of the winds. He was wandering about slapping his buttocks and hopping like a bird. Someone else asked him what he was doing, and he said he was enjoying himself. And then the other person said that everything in the world was in a mess, you know, and he wanted to correct things and make everything better, and Hyung Mung didn't say anything. He just went on hopping and slapping his buttocks. But the third time—as in such stories—he answered and said, "Oh, you just want to improve matters, and you end by simply making them worse." That's where I got the title for my diary, "How to improve the world, you will only make matters worse." And it was Hyung Mung's "chaos" idea that we should let things be as they are, and it's our desire to improve them that ruins everything. Each day provides an example of chaos (…) We never know what's going to happen. The kind of trouble that people have with the weather, we now have with every aspect of our lives. (laughing) I think the thing that I like about the butterfly is that it's like a grain of sand or that little bit of dust. It doesn't seem important. And yet for a scientist to say that it is important and that it's part of the network of cause and effect is pleasing. In other words, it takes our minds away from a hierarchical attitude towards nature.

[506] John Cage, Joe Biel, and Richard Kraft. *Diary: How to Improve the World; (you Will Only Make Matters Worse)*. (Los Angeles: Siglio, 2015).

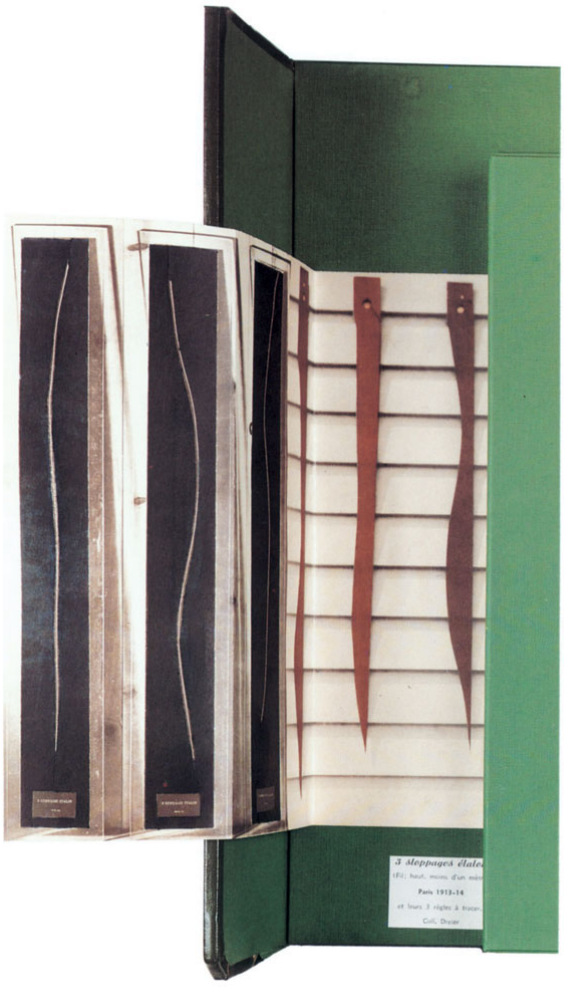

FIGURE 141 MARCEL DUCHAMP, *THREE STANDARD STOPPAGES*, 1913–1914.

FIGURE 142 MAX ERNST MAKING LISSAJOUS FIGURES

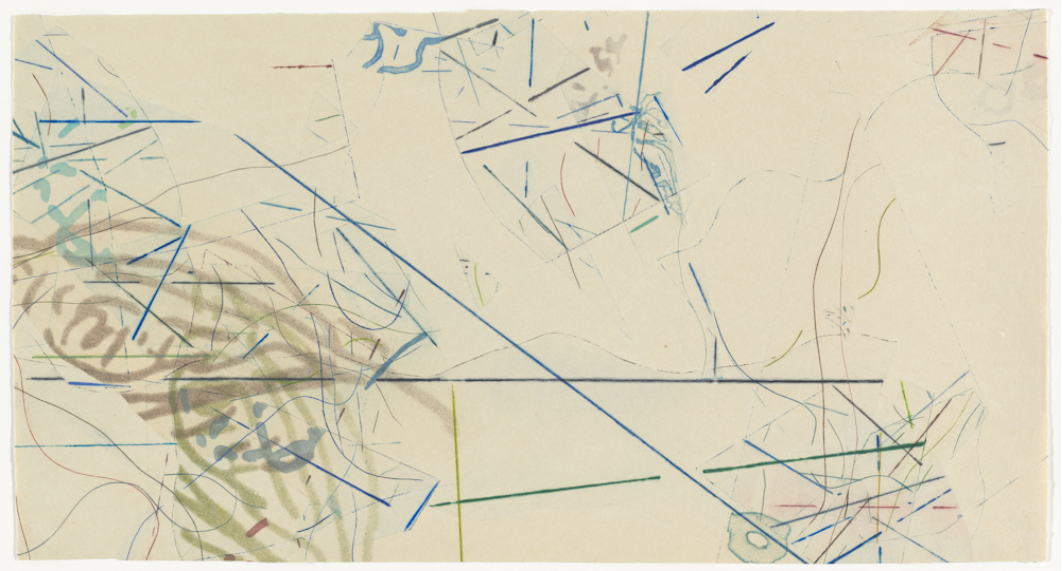

FIGURE 143 JOHN CAGE *CHANGES AND DISAPPEARANCES 32,* 1982. COLOUR ENGRAVING, DRYPOINT, AND PHOTO-ETCHING ON BLUE-GRAY PAPER SHEET. NATIONAL GALLERY OF ART, WASHINGTON.

How do these works relate to the recalibration of risk? Duchamp's work in 1914 reflects a new aesthetic sensitivity by the avant-garde in appropriating scientific methods as a part of their work and, at the same time, their scepticism and critical stances against positivism and determinism. His attempts to translate chance into art ('aesthetically' translate chance) are the effects of a changed mentality that in the years that followed began to understand predictability very differently and for which the older methods of forecasting where no longer sufficient. At a time when scientists and politicians were concerned with finding more and new methods to manage uncertainty through risk and profit from such methods, his work celebrated the importance of open-endedness and of what is beyond human control. In a way, Duchamp's *Three Standard Stoppages* was an admonition (or an homage) to the greater impact of chance in human, natural and artistic affairs. What is even more significant to our discourse is how this homage to chance and unpredictability does not come from traditional methods of representation and irrationality (see Romanticism or Expressionism) but by systematically monitoring and mapping the recurrence of events; that is, by using the very computational methods and aesthetics of 'objectivity' at the basis of risk and the calculus of probability. The visual vocabulary of risk and probability had permeated not just science and decision making, but the formal lexicon of artistic practice and vice-versa.

Terms such as improvisation, spontaneity, chance, transgression, rebellion, protest, have dominated academic and artistic discourse on 20th-century art, perhaps justified by an underlining pre-conception that they are artist's survival strategies in a world that has become increasingly chaotic and yet increasingly governed by systems of 'rational' control.

This makes sense if one believes that artists do not accept pre-existing models but create their own. Artists do acknowledge the arbitrariness of the human tendency to put measure to chaos and to turn chaos into an opportunity, a creative tool that allows them to juggle the dialectic interplay between human agency and the action of chance. However relevant to an interpretation of risk in art as synonymous with risk taking, such discourses will not be undertaken here (see Chapter 1 for my justification). What I am discussing here is instead something more specific, something that has to do with the use of the visual and conceptual vocabulary of risk and probability in artistic practice, and in specific the concern with patterns, computation and schematization that allow for diagnosis of greater forces beyond human control. The engagement with such forces is for me an alternative path towards paying attention to what is uncertain, rather than controlling it. The act of paying attention to something other than a target.

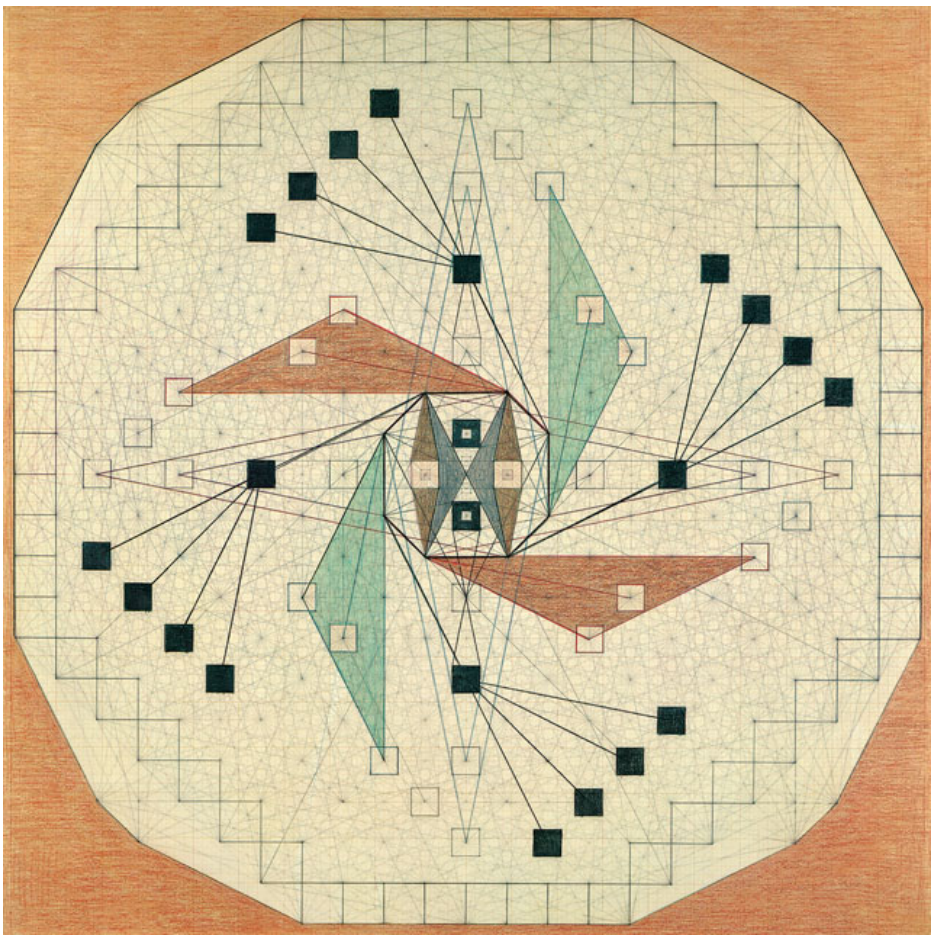

FIGURE 144 EMMA KUNZ, *WORK NO. 004*, N.D. © ESTATE OF EMMA KUNZ

The works of Emma Kunz (1892–1963) (Figure 144), for instance, represent a notable example of diagnostic images (see Chapter 8) that have migrated from their original healing purposes to the art world. Kuntz's drawings on graph paper were never made for artistic

purposes but were instead intended as instruments for her practice as a healer. Operating more or less at the same time as Marcel Duchamp and the emergence of geometric abstractions, she never defined herself as an artist and hardly exhibited her work during her lifetime.

A practitioner of a divinatory method called radiesthesia, Kuntz made each of her drawing with a specific question in mind. She then set a pendulum in motion on top of large square sheets of graph papers and marked his movement and pauses by connecting the points where its position changed. Seen as the receiver of invisible forces, the pendulum indicated different 'energetic' points, which Kuntz recorded on paper. Little is known, however, about Kuntz's thought process, which she deliberately kept secret. Reportedly she asked the pendulum questions such as the outcome of a meeting between Winston Churchill and Franklin Delano Roosevelt and was very concerned about contemporary affairs. She wrote letters about the political turmoil in Europe, and the unfolding of a global conflict that she observed from afar in the safety of a Swiss village. According to a label of her recent exhibition at London's Serpentine Gallery, *Drawing No.020* (1939) enabled her to foresee (or should I say visualise?) the construction of a lethal weapon. Her only biographer, one of her clients, reported that making her drawing took several hours, and even days, since she continually returned to the images. When a patient visited her to gain advice or to obtain one of her natural remedies, she stared at the images to detect 'energy disruptions'. To find the key to her drawings one can only speculate: perhaps they were tools for the "organisation" of energy or even of her thought process, but what one can affirm with certainty is that they were visualisations that helped her to produce a diagnosis about the world. Kunz's oracular drawings were, in a true sense, *diagnostic* images.

If the intentions behind each of Kuntz's drawings remain mysterious, one can further elaborate on the nature of her method in relation to Duchamp's and Cage's 'games of chance' (or probability). Kuntz's diagnostic images have recently been exhibited in major museums and galleries as examples of "spiritual abstraction" despite the fact that Kuntz was not really preoccupied with problems of abstraction and formal composition.[507] Her work does not manifest the expressionistic character of other abstract artists (see Pollock and Lee Krasner) or medium artists such as Georgiana Houghton (1814–1884). On the contrary, her work appears to be very schematic and symmetrical: the effect of a precise methodology based on the systematic recording of movement and its translation into geometrical form. Her method, then, was rather one of mapping, or scoring movement in time. A 'choreography encryption'

[507] John Whitney et all., *World receivers: Georgiana Houghton, Hilma af Klint, Emma Kunz, (*Munich: Lenbachhaus, 2018).

that traced the position of a given object, the pendulum, at different moments in time. Every line and every dot, signposted a moment where the pendulum changed direction, returned to his own trajectory creating patterns of frequencies and therefore probability.

The schematic and mathematical appearance of Kunz's art is not involuntary. She did not do any counting or measuring, but drawing was for her an empirical process of recording physical phenomena. She marked the paper each time the pendulum changed direction, as if it was one more *time step* in her experiment. It was a form of 'sensing' and paying attention to invisible forces and how they could be visualised or translated into images. In this sense, her artistic process not just evokes Duchamp's and Cage's attempts to 'imprison' chance, but has all the characteristics of the current methods of network analysis and visualisation: it identifies patterns out of indeterminacy. The rediscovery of Kunz's work over recent years, moreover, speaks to the modern sensibility of the contemporary technologised world and its acquaintance with circuit boards, graphs and diagrams. Perhaps a modern sensibility is to look at different diagrams for different kind of answers. Oracular technologies are today the expression of a 'sentience' that is as unexplainable as it is fascinating, one which forms a symptomatic escapism from the present explosion of predictive analytics with their statistically based technologies and probabilistic thinking. Emma Kunz's work, with its combination of mystery, honesty, rigour and purity, satisfies both the need for structure and the aspiration to transcendence.

FIGURE 145 EMMA KUNZ AT HER WORKTABLE IN WALDSTATT, 1958 © ESTATE OF EMMA KUNZ

9.3 Computing Possibilities: Simple Particles Make Complex Things

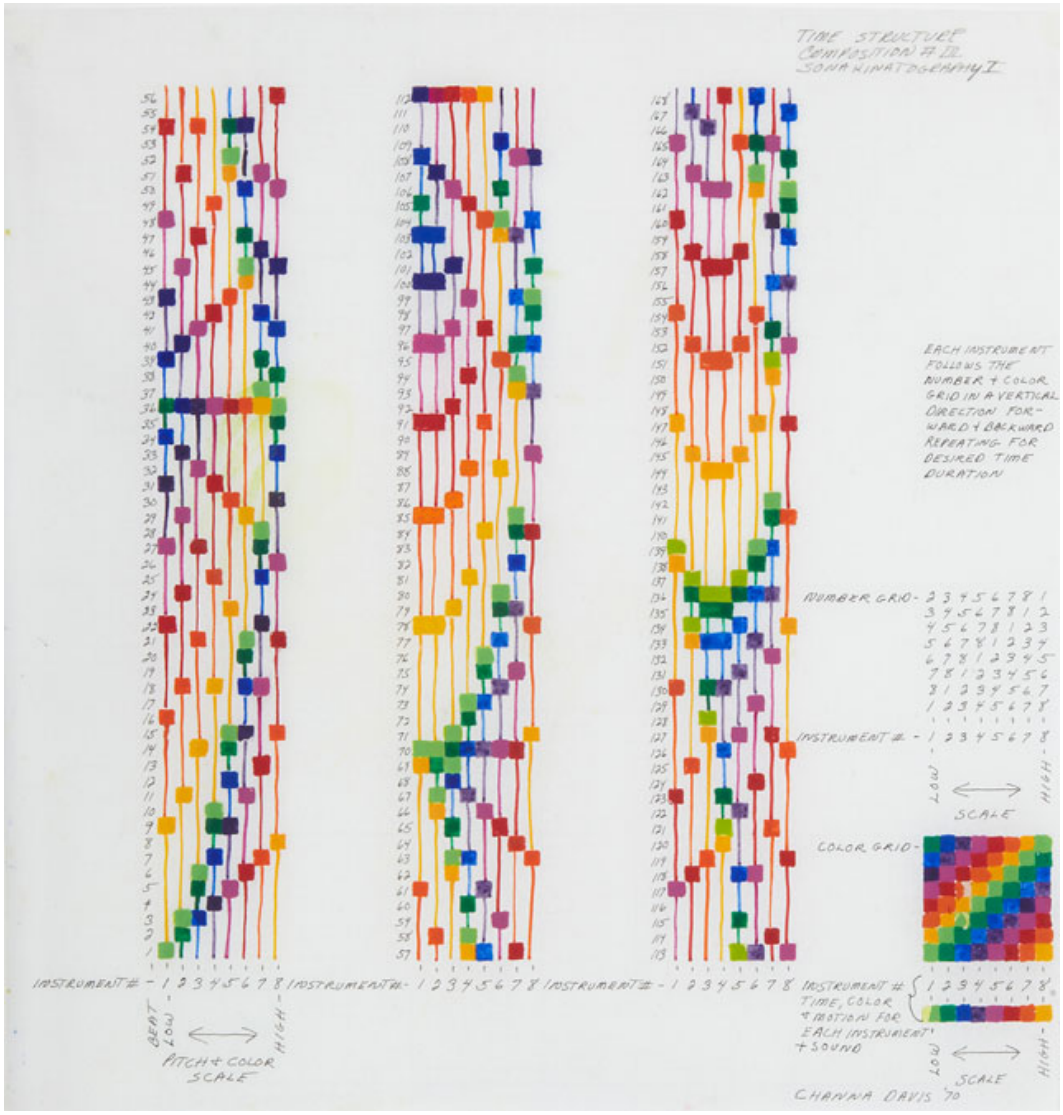

FIGURE 146 CHANNA HORWITZ, *TIME STRUCTURE COMPOSITION # III, SONAKINATOGRAPHY I*, 1970. INK AND PLAKA COLOUR ON PAPER © ESTATE OF CHANNA HORWITZ

Like Emma Kunz, the artist Channa Horwitz (1932–2013), was also interested in mapping movement in time, but her idea of motion was not one that she could observe in reality but one that she could *simulate* (or choreograph) through the creation of algorithms. In this sense her making process bore a closer resemblance to that of computers, as she composed abstract images by devising rules for the time-space progression of simple forms. I will now discuss

her work in relation to the development of purely abstract computational methods for the calculus of probability and their importance in the modelling of risk situations.

As I noted in the previous chapter the theoretical and practical contributions of cybernetics introduced a new aesthetic sensitivity towards schematic and patterned forms of visualisation in the post-war period. Driven by the challenges and uncertainty of a conflict of global scale, new methods of computation and robotics came about that could simulate (or emulate) natural processes and their self-generating 'propagation'. These methods were based on a practice of reduction and simplification (on the one hand) but also on complicated calculations enabled by the newly invented computers and their ability to calculate probability. In the 1970s, Horwitz developed an artistic practice based on computational methods for the arrangement of basic geometrical shapes or colours. Her preoccupation was very different from her contemporary abstract painters, who were mainly concerned with questions of 'perception' or 'objectivity' (see Op Art or Minimalism).[508] Rather, she was interested in visualising time, or better, possibilities in the space-time arrangement of simple entities according to algorithms that she designed herself.

At the basis of Horwitz's practice and working methods, the essential question of "What if?", foregrounds an interest in how probability unfolds in the future.[509] To answer this question, she chose to use computational methods and to strip down every representational and decorative element to focus on the most simples of forms. Hers was a process of reduction where it was not the 'single unit' that mattered but the patterns that she could obtain by exploring their infinite combinations (or possibilities) and sequencing methods on a sheet of paper. In this regard, Horwitz incorporated time not in order to visualise fluent movement and continuity, but to introduce structure: the introduction of 'time steps' enabled her to map the position of single units in a particular moment in time and at regular intervals. Such reliance on 'times steps' (or regular intervals) is a common thread of the examples examined in this chapter so far, and like these case studies Horwitz's works are also systematic attempts to map possibilities. In the artist's own words, they were "time structure compositions".

Horwitz recounts becoming interested in experimenting with 'time visualisations' when preparing the proposal for the Los Angeles County Museum of Art's *Art and Technology*

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[508] Chris Kraus, "Channa Horwitz 1932–2013", *Artforum,* 52.1(2013): 67.
[509] A few commentators have referred to Horwitz's work in these terms. See Leah Ollman "Hammer's 'Made in L.A.' biennial paints cross-generational picture" in *Los Angeles Times* June 17, 2012, accessed May 25, 2019, https://www.latimes.com/entertainment/la-xpm-2012-jun-17-la-ca-old-artists-20120617-story.html.

exhibition in 1968 (Figure 147).[510] The project consisted of a sculpture composed of eight large beams that were suspended from the ceiling and moving according to a magnetic field. In attempting to visualise their movement, she became interested in expressing on paper their changing position at regular intervals. In the years that followed she mostly abandoned sculpture (and the work was never realised), but she concentrated on the graphic representation of motion. She set her visual vocabulary on basic elements (numbers, geometrical forms and colours), which she treated as the notes on an imaginary pentagram. "I had no ability to compose in the 4th dimension" she wrote, explaining that her works from the series *Sonakinatography* arose from her frustration about not knowing music.

> I could not conceive of how a choreographer or a composer could compose time. Because of this inability and desire to compose, I devised the system that would allow me to see time visually. I felt I could use a graph as the basis for the visual description of time.[511]

In *Sonakinatography I* (1977) (Figure 146), for example, she chose to work with eight colours (eight was a constant of her work) each of them corresponding to a different number. She then positioned them on a grid of vertical lines (similar to an inverted pentagram) and devised a rule where each colour-unit moved as many steps as its corresponding number. Once this process was completed, she began again as if following a circular cord, giving to each entity the name of an instrument.

To visualise time, and emulate music, then, Horwitz designed conceptual guidelines (or algorithms), that would regulate the behaviours of simple entities: she just had to apply them and wait and see what would happen on a sheet of paper. Through the implementation of such rigid 'rules' of the game, harmonious patterns emerged from the structured sequencing of colours. No matter what the entity was, a colour, or simply a number as seen in *Number Matrix* (1977) (Figure 148), what really counted was the pattern and not the nature and character of each unit: it was a process of organised abstraction. Horwitz's time, moreover, was not a real one, but one of computers, since her work is not as much concerned with recognising patterns but with creating new ones.

The resemblance between the logic of abstraction in Horwitz's work and the coding of digital technology, where every possible form of information is encoded through the infinite combination of ones and zeros, is striking. "Computation", writes Max Tegmark, "is a

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[510] The work was never realised but the proposal has been widely exhibited under the title "*Art and Technology Proposal: Beams and Intensity of Lights* (1968).

[511] All Horwitz's quotes in this chapter come from an unpublished collection of writing available on Horwitz's Lisson Gallery profile. "Channa Horwitz Writings", Lisson Gallery (pdf), accessed May 19, 2019, https://www.lissongallery.com/artists/channa-horwitz.

pattern in the space time arrangement of particles, and it's not the particles but the pattern that really matters".[512] In his extremely clear description of the computational architecture at the basis of modern-day computers, Tegmark clarifies the intrinsic ontological and philosophical connection between computational architectures and the ability to create and recognise patterns. Resulting from a similar process of simplification and recombination, Horwitz's vocabulary reminisces "an alphabet of pictograms"[513], signs or codes, but for this very reason it is also a complex architecture where patterns of lines, colours and numbers emerge from regulated interactions. The reduction of forms into units enables for variable iterations and interactions to become complexity.

The strong emphasis that Horwitz gave to the dimension of time as a driving force for her permutations, moreover, deserves some further thought in relation to the calculus (or simulation) of probability and in particular to what I have described as teleological decision making in Chapter 8. Horwitz's work plays out ideas of regularity, self-replication and modelling that were actively interrogated by cybernetics, but are also key in today's scientific modelling and predictive technologies where future projections have become more important than facts.

> I feel that through chance comes structure, or that if chance plays out *long enough* it will become structure (…). As I see the world, it appears to have grown and "IS" through chance, but it is, as I see it, a design that has many entities all tied together into a huge structure, and the world plays out in an apparent chance that is really a structure but we are too close to see the structure.[514]

[512] Max Tegmark, Life 3.0, 67. Modern computation systems use a paradigm where computations are split into multiple time steps. This computational architecture was developed during 1935 and 1945 by Alan Turing, Von Neumann and co. Today's computers often gain additional speed by parallel processing.
[513] Rob Stone, "Channa Horwitz's 'Progressions and Rhythms in Eight'", review of the exhibition at Contemporary Art Gallery, Vancouver (July 13–September 16, 2018) in *Art Agenda,* September 14, 2018, accessed May 19, 2019, https://www.art-agenda.com/features/241905/channa-horwitz-s-progressions-and-rhythms-in-eight.
[514] Horwitz, "Channa Horwitz Writings".

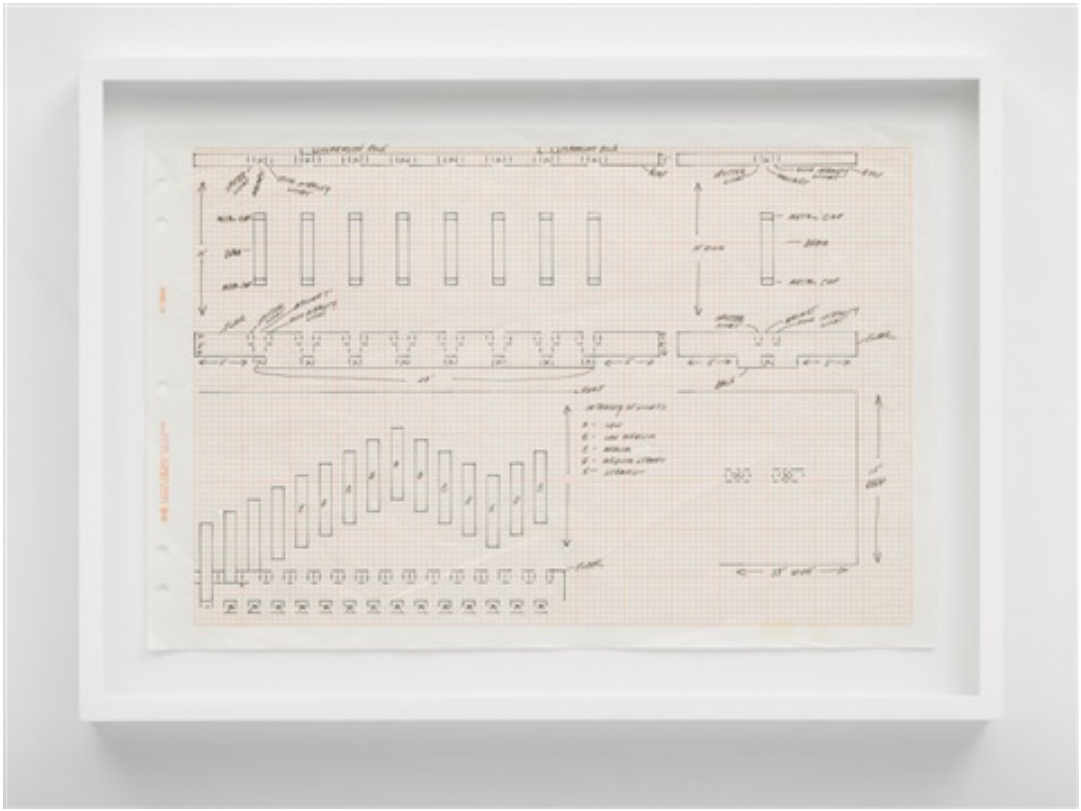

FIGURE 147 CHANNA HORWITZ, *ART AND TECHNOLOGY PROPOSAL: BEAMS AND INTENSITY OF LIGHTS* (WORKING DRAWING), 1968. INK ON RED GRAPH PAPER. © ESTATE OF CHANNA HORWITZ

In the artist's writing, an affinity with Weaver's theories of organised complexity emerges (see Chapter 8). Horwitz's use of codes, encryptions and instructions to play out and simulate on paper how bodies (animated or not) can be re-arranged by following specific rules resemble cybernetics interests in the self-regulatory patterns and structures of realty. Doubtless, she was aware of their technological and scientific contributions and their commitment to discovering the hidden structure of nature and society. Not to mention that acclaimed exhibitions such as *Information (1970)* and *Cybernetic Serendipity (1968)* took place more or less in the same years. Although it's beyond the scope of this research to determine Horwitz's direct stance towards this *zeitgeist* – certainly a valid question for future research — her work suggests some undeniable remarks in this direction. Made at a time when computers began to become mainstream household devices, the "gird system" where patterns unfold in Channa Horwitz's work expresses an understanding of the world as a complex but controlled system. Effectively, the rigidity of Horwitz's rules allows for the emergence of harmonious patterns, repetitions and regularities that give a sense of a universe where things unfold at their own pace.

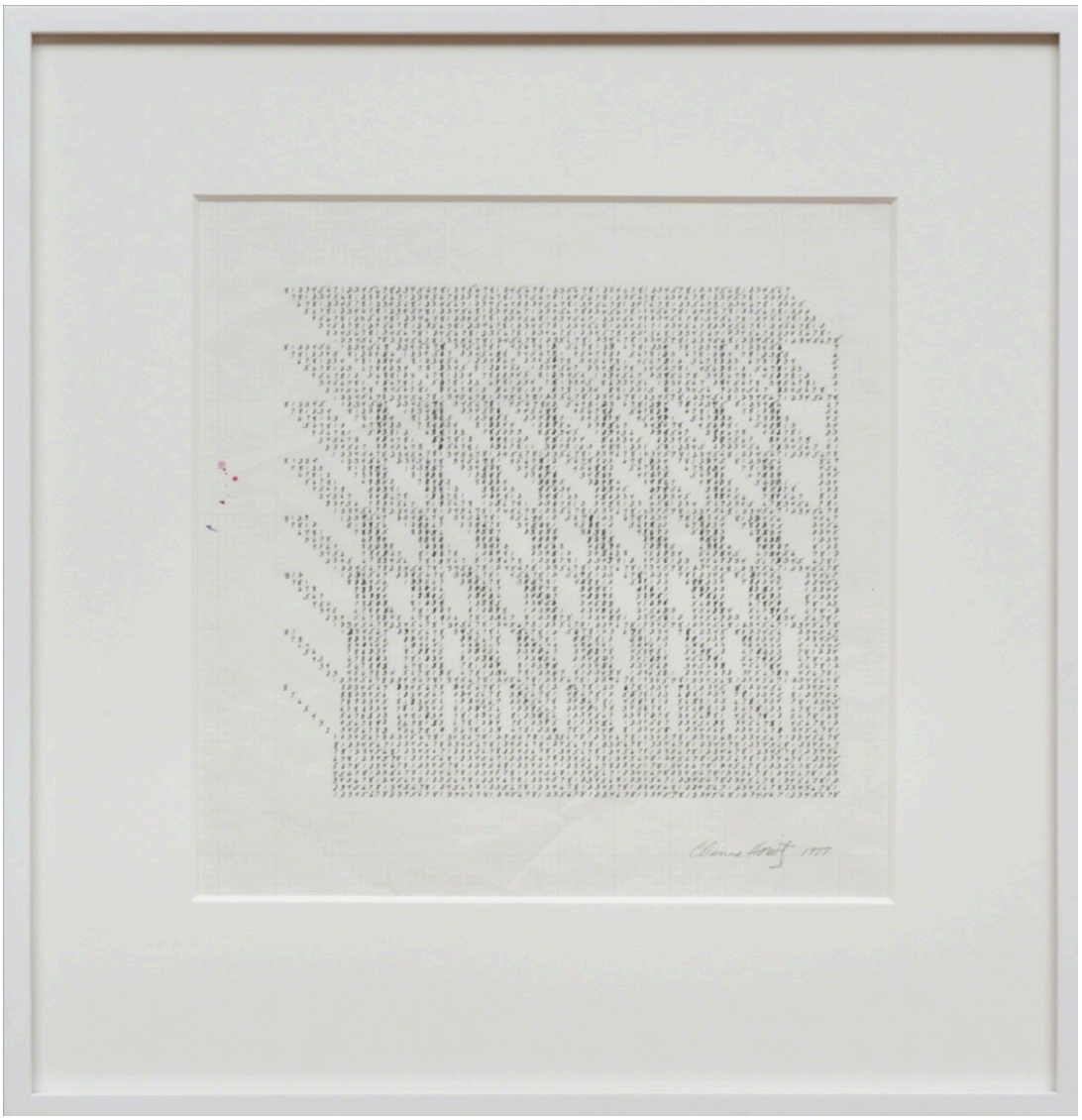

FIGURE 148 CHANNA HORWITZ, *NUMBER MATRIX*, 1977. PEN ON GRAPH PAPER © ESTATE OF CHANNA HORWITZ

In this universe, things happen at regular intervals and pauses, where the eye, or the ear (several artists have executed her compositions in music or choreography) can temporarily rest before embarking on a new journey. Horwitz's world is intelligible and somehow congruous to the human need to find peace in regularity and understanding. Still, one should ask, is this an idealised world that only exists in the 'fictitious' realm of the work of art? An '*hortus conclusus*' where things can grow undisturbed from the outside world, untouched

from the physical, social, emotional factors that continuously change and disrupt "the rules of the game"?[515]

It's productive in this regard to consider a comparison between the realm of computer modelling and the one of art. In an experiment of modelling probability in a computer system, for instance, clear parameters are played out in a system that, no matter how complex, remains in a computational realm and is therefore 'isolated' in its consequences from the reality that it aims at modelling. If this was not the case, the model would lose its primary function. Let us consider for example the modelling of turbulences on a plane where the different intensity of meteorological factors is digitally simulated and played out against the simulated flight. By running the model, scientists can estimate, with a certain amount of probability, that an airplane will be able to withstand strong turbulences when flying; and they will make decisions accordingly. Time is an essential factor in this process, since errors, one after the other, are incorporated in the modelling and eventually, by reducing risk, the safest possible airplane is built and set to fly in the real world. A mathematical formula could hardly predict such a complexity of factors, but the modelling system allows for the introduction of step-by-step variables that can be systematically measured and evaluated. Processes like this are regulated, according to scientist Stephen Wolfram (1959), by a 'principle of computational irreducibility'. There are processes that mathematical formulas cannot describe, and therefore only modelling can be used.[516]

Horwitz's working method is similar to computer modelling: by setting specific parameters and playing out how these parameters behave *in time*; she was able to 'observe' how her 'instruments' could progress and change in the future. She could compose harmonies and patterns by introducing the simultaneous variables of time and space, and study their application on simple phenomena. She could also incorporate errors (as she did in her later works), as mistakes in the application of algorithms allowed her to discover new functions and formal solutions. Computing, or programming, then, became for Horwitz a way to visualise how 'simple entities' will (or could) behave *in the future*. The concern with representation, which has disappeared to a certain extent, shows how things are perceived 'in time' and therefore are constantly changing. Not so much concerned with recognising existing patterns, Horwitz was interested in creating them anew. This is why modelling, rather than scanning, was at the core of her practice.

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[515] This was the title of Horwitz's most recent exhibition in London at Lisson Gallery 15 March – 4 May 2019.
[516] Stephen Wolfram, *A New Kind of Science,* (London: Wolfram Media; Turnaround, 2002).

To summarise, Horwitz's method of 'playing out' possibilities through algorithms and their instructions is prescient of later developments in computing in the direction of predictive technologies and analytics used as aids for the management of risk and uncertainty. Today, computer modelling such as, for instance, neural nets has become the most sophisticated method used to predict how 'anything' will (or could) be in the future. One just has to run the program and wait and see. But within these methodological similarities there is also one important difference. Horwitz was not interested in prediction, as her modelling process was not meant to control chaos, but rather in discovering the secret order of things and admiring its 'beauty' with an open mind.[517] Horwitz's computation was very much 'human', 'uninterested' and aesthetic; however, the cybernetics interest in forms of organised complexity was part of a purposive approach towards discovering forms of governance and control. Even more extreme is the application of similar 'rules' in identifying patterns of probability for the modelling of possible futures in today's "scenario planning" and strategic forecasting methodologies. [518]

9.4 Randomness behind the Structure: Troika and Stephen Wolfram

In the concluding paragraphs of this chapter, I will turn to two recent artworks that deal with contemporary predictive technologies, and I will focus in particular on the development and application of automated self-reproduction systems in technology and art. What kind of aesthetic do they reflect when the workings of predictive technologies are presented in an artistic context? Are they still, as in the 1960s, the products of rationalist thought and promises of control (and safety)? Or have they become themselves the techniques which, insidiously hiding behind 'black boxes' and complex algorithms, are becoming disconcerting *Weapons of Math Destructions*? In order to answer these questions, it is worth

[517] I am using the word beauty here not in relation to a degree of pleasantness, but to describe the uninterested pleasure of contemplating.
[518] George Burt and Anup Karath Nair, "Rigidities of imagination in scenario planning: Strategic foresight through 'Unlearning'", *Technological Forecasting and Social Change*, 153(2020), accessed 15 February 2020, https://doi.org/10.1016/j.techfore.2020.119927.

adding some further remarks about the important role that prediction based on 'modelling', rather than causality, plays in contemporary decision making.

According to the scientist and physicist Stephen Wolfram, a radical shift has happened in the years since 2000 during which time equations, which had dominated scientific thought in previous years, have been largely supplanted by programs. "Models simply work better and are more useful" he writes, since for Wolfram computation is the only way to simulate the behaviour of a system.[519] Wolfram's observations of the communalities between computational and natural systems lie at the base of this assumption. For him, the study of systems should focus on the digital as much as on the natural world and programming is an essential part of the understanding of both. This conception no longer relies on mathematical equations to predict the behaviour of complex systems, but rather on a time-based process of self-reproductive creation. Such systems, in fact, enable the incorporation of errors (feedback loop) that build progressively more refined models and can be used in any type of research.

At the core of Wolfram's theory is the study of the behaviour of the cellular automata, the "simplest programs one can imagine".[520] Cellular automata are programs where a single cell in an initial state (black or 0) 'spontaneously' changes 'state' at discrete time intervals according to its own position and the position of its two neighbours: thus, black becomes white, 0 becomes 1. Observing the variation of behaviour of these cells *in time,* Wolfram describes their permutations as a process as self-reproduction (rather than mapping). In a sense, Channa Horowitz's algorithmic permutations followed a similar logic, where the "behaviour" of simple units in different time-space arrangements produced the visual effect of abstract mapping. Wolfram, however, observed that the same patterns obtained through cellular automata also exist in nature. The pattern obtained through Rule 30, for example (Figure 149, Figure 150) is the same as the one on the shells Conus textile. [521] For him such 'correspondence' is not casual (or arbitrary), but demonstrates that very complex systems 'of growth' (that is *complexity*) can emerge from modelling the behaviour of simple cells according to very basic algorithms. Wolfram claims that Rule 30 not only explains how the same pattern came about in nature, but also that the computational exercises of cellular

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[519] Stephen Wolfram, "*A New Kind of Science*: A 15-Year View". *Stephen Wolfram writings* (blog),
accessed May 19, 2019, https://blog.stephenwolfram.com/2017/05/a-new-kind-of-science-a-15-year-view/.
[520] *Idem.*
[521] Stephen Coombes, "The Geometry and Pigmentation of Seashells" *Techn. Ber. Department of Mathematical Sciences* (pdf), 15 February 2009, accessed May 19, 2019,
https://www.maths.nottingham.ac.uk/plp/pmzsc/pdfs/Seashells09.pdf

automata could be used for modelling natural, social or physical phenomena: in other words, practically everything.

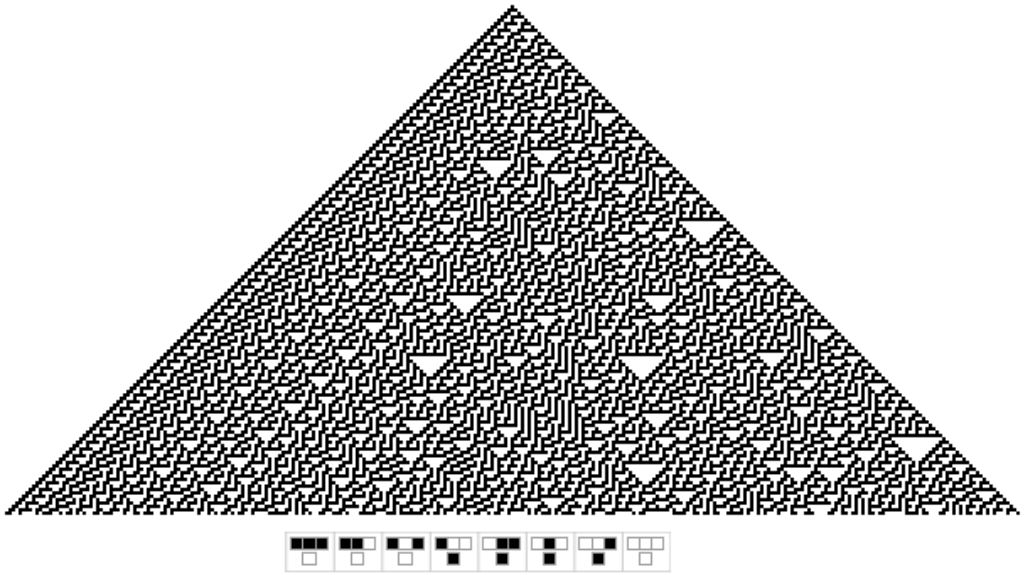

FIGURE 149 A RULE 30 VISUALISATION AS PUBLISHED ON WOLFRAM'S WEBSITE.

At the basis of Wolfram's thesis is the long-standing research on self-replicating machines and their correspondence in nature that begin in the 1940s with Von Neumann and Stanislaw Ulam's (1909–1984) work at Los Almos US National Laboratory, the same lab that produced the first atomic bombs.[522] Von Neumann was interested in developing systems that were able to multiply and create in time other identical systems. Could a machine possibly fabricate machines as complicated as itself, asked Von Neumann. The key for him was in blueprints that contained the instructions for their reproducibility.[523] The mathematician Rudy Rucker (1946), one of the founders of cyberpunk literature, has commented that "The role of the blueprint is entirely analogous to the way DNA is used in biological self-reproduction, for here the DNA is both copied and used as instructions for building new proteins".[524] Although Von Neumann's demonstrations were purely mathematical, they

[522] John Von Neumann and Arthur W. Burks, *Theory of Self-Reproducing Automata*. (Urbana and London: University of Illinois Press, 1966). See also Stanisław Ulam, *Adventures of a Mathematician*, (New York: Charles Scribner' Sons,1983).
[523] Using techniques of mathematical logic, von Neumann was then able to deduce that such self-reproduction should, in fact, be possible. His proof hinged on the idea that an automaton could have a blueprint for building itself, and that in self-reproduction, two steps would be necessary: 1) to make an exact copy of the blueprint, and 2) to use the blueprint as instructions for making a copy of the automaton.
[524] Rudy Rucker, "The Origins of Cellular Automata: an informal history", *Collected Essays,* (Los Gatos, California: Transreal Books, 2012), accessed May 19, 2019 http://www.mathcs.sjsu.edu/faculty/rucker/index.html.

attracted the attention of several computer, natural and social scientists. In the 1970s they gained prominence with the development of the *Game of Life* by John Horton Conway (1937), a simulation of complex processes of self- replication through the visualisation of 'time evolutions' of cellular automata. The possibilities offered by self-replicating systems were so multiple and diverse that the digital physicist Edward Fredkin suggested in the 1980s that the world we live in is in reality a cellular automaton, and later boldly claimed that "What cannot be programmed cannot be physics".[525] In short, it is not just an overwhelming trust in the process of computing that connects these thinkers but also, as Joel Schiff has pointed out, a deterministic world view,

> One essential feature of Quantum Mechanics, is randomness. Yet the randomness generated by a computer is deterministic and will be the same each time it is generated. But here we can invoke Wolfram's notion of computational irreducibility in that there is no way to predict the outcome of some computations and the only way to know the future is to compute it. This notion is embodied in Fredkin's statement, "In general, physics is computing the future as fast as it can."[526]

The time evolutions of cellular automata, then, are diagnostic images of a different sort compared with the ones that I have discussed so far, since they stretch vision towards the future behaviour of things, and in fact towards anything one may choose to apply them to. They visualise processes of replication or growth, rather than recording the existing data available in the world. Nevertheless, they enable a different kind of decision making, one that is based on data coming from future or possible parallel universes, the ones of the model and its 'time visualisations'. They are therefore ideal tools for speculative thinking but also particularly useful for testing the phenomena for which limited existing data is available. It is no coincidence that a similar kind of thinking and modelling was applied in the development of the hydrogen bomb by Ulman. On an epistemological level, moreover, they are 'uncompressible' in the sense that they cannot be translated into a mathematical formula but are better approached through modelling and programming, since such processes better reflect the complexity of the process occurring in the physical world. Even if movement, growth and replication are the focus actions of cellular automata and, more recently, of neural networks, their visualisation is not necessarily most effectively expressed through

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[525] Fredkin, E., Digital Mechanics: an informational process based on reversible universal cellular automata, Physica D 45 (1990), 254–70. See also Fredkin, "A new cosmogony", in Proceedings of the Workshop on Physics and Computation, Oct. 2-4, 1992, IEEE Comp. Soc. Press (1993), 116–21.

[526] Joel L. Schiff, *Cellular Automata: A Discrete View of the World*. (Hoboken, N.J: Wiley-Interscience, 2008), 171. Edward Fredkin, "Finite nature," *Progress in Atomic Physics, Neutrinos and Gravitation*, (Edition Frontiers, 1992): 345-354.

videos, music or durational art, but through patterns that are intriguingly similar to what Horwitz called the "spatial organization of time".[527] Remarkably, Horwitz's *Sonakinatography* (Figure 146) contains not just the *blueprint*, the pattern composed through the arrangements of her 'instruments' (or bytes), but the instruction for his own replication (detail on the right hand corner).

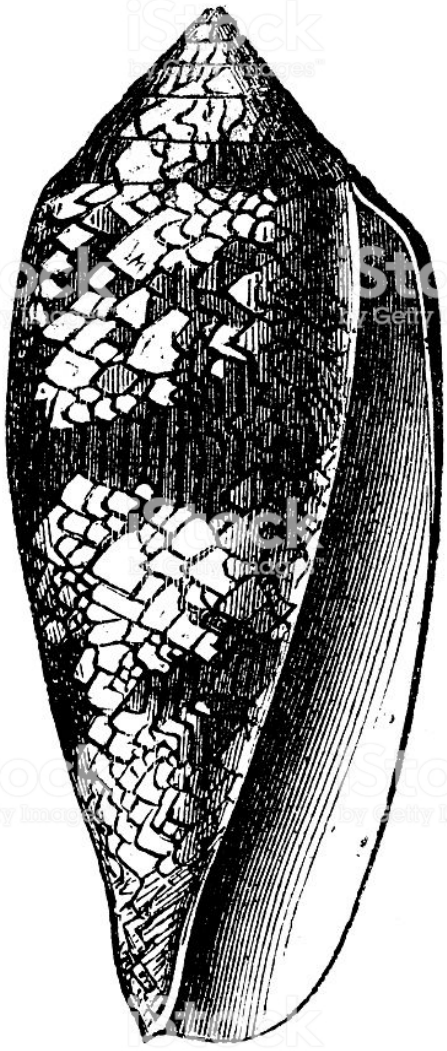

FIGURE 150 CONUS TEXTILE IN AN ANTIQUE ILLUSTRATION © ISTOCKPHOTS.COM.

[527] Horwitz, "Channa Horwitz Writings".

FIGURE 151 TROIKA., *HIEROPHANY, LIFE AND DEATH OF AN ALGORITHM*, 2013, BLACK AND WHITE DICE © TROIKA

FIGURE 152 TROIKA. *REALITY IS NOT ALWAYS PROBABLE*, 2018. 21,542 10MM WHITE DICE © TROIKA

Working at the intersection of art, technology and science, the London-based art collective *Troika* (Eva Rucki, Conny Freyer and Sebastien Noel) have made a number of works inspired by research on cellular automata. In 2013 they began producing a series of works under the title *Hierophany*. Whilst the title, from the ancient Greek *hiero* (sacred) and *phainein* (to show), alluded to the manifestation of the sacred, the work consisted of framed compositions of black and white dice based on the cellular automata (CA). These first works where made by following CA basic rules and by using standard frames.

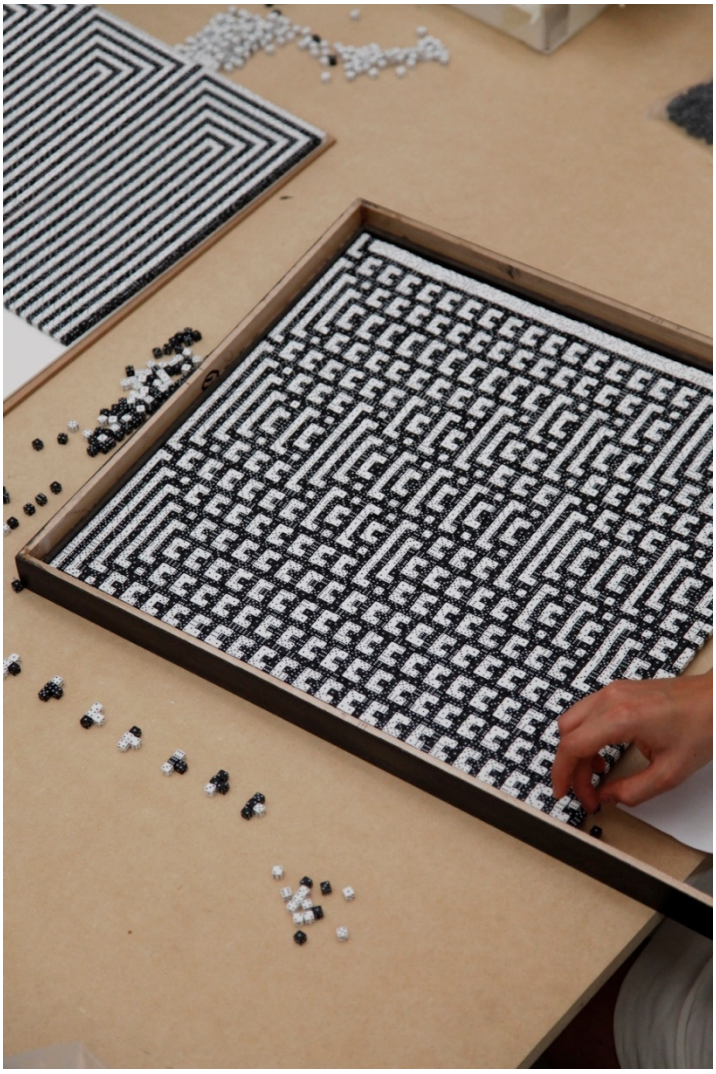

FIGURE 153 TROIKA. *HIEROPHANY*, 2013, PRODUCTION IMAGE IN THE ARTISTS' STUDIO © TROIKA

The artists commenced by filling the top line with random dice and then proceeded by filling row after row, with each line configuration being determined by the previous line's patterns; black and white dice were thus chosen according to their 'previous state' (Figure 153). Following these works, Troika have continued to experiment with various rules of cellular automata by running different algorithms and changing the physical space where dice are accommodated. Using larger and smaller frames, multicoloured and tetrahedral dice, they have enabled endless and complex patterns to emerge, or, in some cases, have observed random patterns dying out into the 'end game' of parallel lines such as in *Hierophany, Life and Death of an Algorithm,* (2013) (Figure 151). Troika's interest in the materiality of complex process that usually happens in the digital universe is evidently an attempt to understand and reconnect patterns of probability with the physical experience of making the work. The works visualise probability through the spatial organisation of time steps in a similar fashion to Horwitz's drawings, or to a CA, but the introduction of random numbers to the units adds a further layer of complexity.

The artists' engagement with CA, in effect, goes beyond the literal application of Wolfram's rules to a work of art, stemming from a desire to problematise their processes of growth.[528]Wolfram, for instance, believes that complex systems are somehow deterministic since it is always possible to play out the same rules and obtain the same patterns (what we see as random is often the result of very complex permutations), and there is no questioning of the nature of the basic cell in his work. Troika's introduction of dice, with their random allocations of numbers on the visible face, adds a further level of randomness to Wolfram's basic units, hinting at the limits of thinking and modelling through basic binary distinctions (1 and 0; black or white). In so doing, it suggests that there is more to an elementary cell than just what we see as black or white: dynamic, abstract computations might be oblivious to the complexity from within each entity (each dice). As the different numbers on the face of the dice are irrelevant to the logic of the replicating system (they are random), the work points to what might be missed in the relation between the modelling and the processes that are being modelled. It demonstrates how order can emerge when observing random phenomena for long enough, and how looking closely at this 'order' will reveal the profound level of randomness that lies beneath. Hinting at the possibilities of that which is difficult to contain through human intelligence but might form the frontier of an artificial one, we are presented with a potentially endless overlap of macro and microcosmos, order and disorder,

[528] Wolfram himself is interested in the artistic capacity of cellular automata and has encouraged musical and designed applications. An article from 1985 published by Rucker on Isaac Asimov's *Science Fiction Magazine* in April 1987 describes the sense of wonder that cellular automata generated at the time, [Rucker, "The Origins of Cellular Automata"].

clarity and confusion: a mathematical sublimity that may be computable, but is still mentally ungraspable.

The translation of purely abstract, computational phenomena into physical objects like dice in Troika's work, moreover, deserves further consideration. Loaded with scientific and metaphorical associations, dice not only have widespread cultural significance, but very specific aesthetic properties which are key in the comprehension of Troika's works. Evoking games of chance and probability, the dice is also culturally familiar, has a regular geometrical shape and a very specific size. It's designed to fit in one's hand and to be thrown. It suggests randomness as much as control, chance as much as mastery. Aligned side by side in Troika's compositions with just one side facing the viewer, the squared (or in some cases triangular) edges of each dice form a regular grid; that is, a structure where randomness is contained. The graphic alternation of black and white squares in the *Hierophany* series maintains the 'pixelated' feature of CA's early permutations in digital computers, but it's in works such as *Reality is Not Always Probable* (2018) (Figure 152) that their practice reaches even greater elegance. As the nit distinction between black and white has dissipated in favour of a subtler arrangement of dots, the composition acquires a greater level of calibration between order and randomness, abstraction and meaning (or interpretation), confusion and reassurance. Mediating between unpredictability and control, between taking risks and avoiding dangers is a similar exercise of calibration: in art as much as in life.

Even if Troika's work appears highly abstract and far from illustrative of social phenomena, for me the use and abuse of predictive analytics in contemporary society is what lurks behind the polished and elegant feature of the work. I do not so much marvel at the hidden patterns in nature and mathematics, as in the physical manifestation of the workings (and problems) of predictive analytics and modelling in contemporary society where they are too often uncritically employed in decision making. It's comforting to look at Troika's work, and yet it is also an invitation to pay attention to the religion of science.

Fifteen years after *A New Kind of Science*, Wolfram published a long blog post looking back at the issues highlighted in the book. He acknowledges that great developments in predictive modelling have been achieved through the training of neural nets, and also remains positive about the possibility of self-reproductive models (or simulations), even suggesting that life might one day become completely virtual,

> Right now, us humans exist as biological systems. But in the future, it's certainly going to be technologically possible to reproduce all the processes in our brains in some purely digital—computational—form. So insofar as those processes represent "us", we're going to be able to be "virtualized" on pretty much any computational

> substrate. And in this case, we might imagine that the whole future of a civilization could wind up in effect as a "box of a trillion souls".[529]

The practical or insidious applications of predictive modelling, as I have discussed in the introduction to this chapter, are now becoming the subject of an intense academic and public debate. Whilst they attempt to predict growth, today's scanning techniques use similar principles of growth to mine data and aid decisions. The usefulness of the model, as I have earlier pointed out, relies on the safety-net represented by its self-contained 'experimental' existence, but what happens if the model becomes increasingly damaging of the real world? And if the world was to be completely replaced by models, as posited in Wolfram quote above, wouldn't the model expose those living from within it to 'real' dangers? Modelling, then, might cease its function if it becomes too embedded in the reality it attempts to simulate. What is the point of 'testing' a bomb, if it actually harms people, animals and places? What should be the parameters in modelling something that might put anyone into serious harm? What are the implications, then, of modelling in the collective experience of life, the future and the past? Making sense of oneself in the overwhelming universe of large numbers is proving to be a major challenge of the 21st century, where the possibility of infinite modelling of existing and possible realities creates even more uncertainty and challenges to its understanding.

[529] Stephen Wolfram, "*A New Kind of Science*: A 15-Year View".

9.5 Is this the Future?

Developed in order to take informed decisions about an uncertain (or incalculable) future, modelling in the prospect of General Artificial Intelligence is becoming an 'existential risk' in its own right. At the same time, models are exceptionally useful in contemporary engineering, science, biology, archaeology, environment, history, education, business, medicine, social sciences and in confronting the problems of the Anthropocene. Models, then, are both a challenge and a tool for the precariousness of contemporary life which deals with ever-increasing threats and risks. In the conclusion of this chapter, I will consider Hito Steyerl's (1966) recent installation at the 2019 Venice Biennale, a work where the German artist and filmmaker used digital modelling technologies to engage with the perils of contemporary life and our relations with predictive analytics. The imagery is almost entirely composed through Artificial Intelligence

Steyerl is an artist that does not need much introduction: several publications and seminal works have elevated her into a cult artist whose practice sits comfortably between film theory, media studies, and visual culture, "twisting", as the back cover of her collected essays publication states, "the politics of representation around the representation of politics". In *How Not to Be Seen* (2013), a take on the instructional film format, the artist provided five lessons on invisibility that present to us the paradoxes of living in the age of "total over-visibility".[530] Steyerl's essay 'In Defense of the Poor Image', dwelt in the politics of low-resolution images between corporate exploitation and a reappraisal of Dziga Vertov's idea of "visual bonds". [531] I will not dedicate much of the remaining chapter to framing her practice, as there is extensive literature in this regard, instead I will focus on her Biennale installation. The work precisely illuminates some of the points that I have discussed so far in this chapter, concerning techniques for the visualisation of the future according to data-driven computational models and how they can redistribute the sensible experience of the present. I shall now provide a reasonably detailed description of my experience encountering the work, which is also available online.[532] The video is available online at https://www.youtube.com/watch?v=AYQB4_riCCg, and so therefore, instead of providing a detailed description, I will focus on describing my subjective experience in encountering the work.

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[530] Hito Steyerl, *How Not to Be Seen: A Fucking Didactic Educational MOV File*, 2013, video.
[531] Steyerl, Hito. *The Wretched of the Screen*, (Berlin: Sternberg Press, 2012).
[532] Hito Steyerl, *This is the Future*, 2019: single channel HD video, colour, sound, accessed July 19, 2019, https://www.youtube.com/watch?v=AYQB4_riCCg.

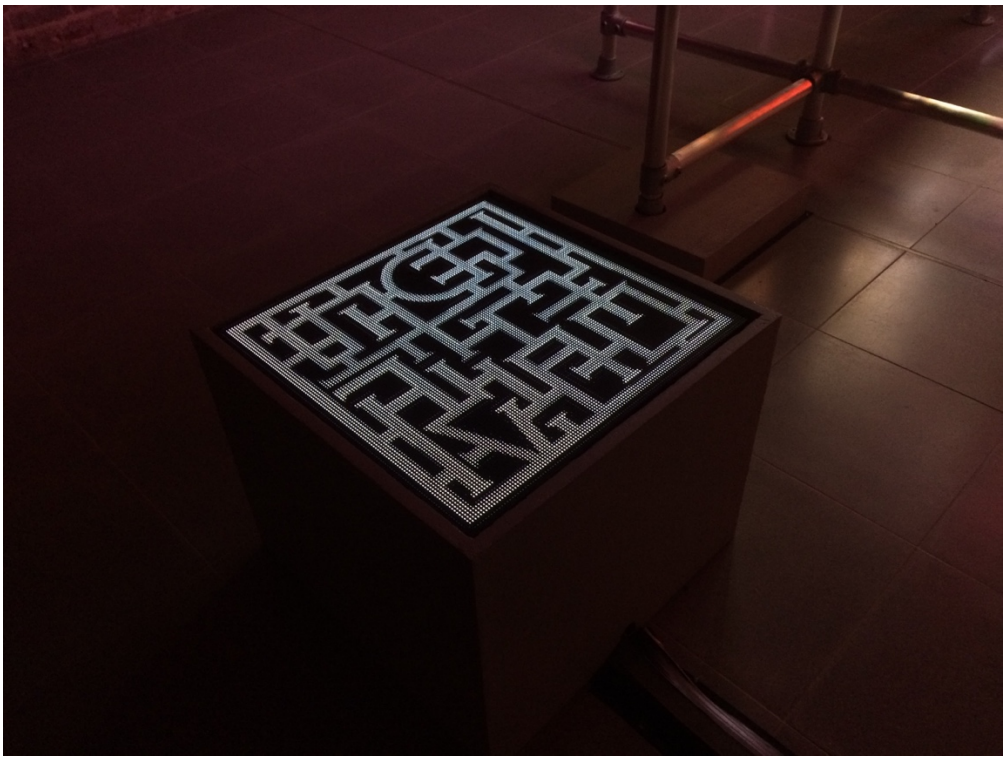

FIGURE 154 HITO STEYERL, *POWER PLANTS*, 2019, INSTALLATION VIEW, SERPENTINE GALLERY © HITO STEYERL

This Is the Future (2019) is mainly but not simply a work about Venice (Figure 155). As visitors walk through a dark space on gangways, the same ones that help pedestrians navigate the city during *acqua alta* (high tide), HD screens hanging in mid-air depict algae floating under water and drifting with the movement of small waves. More screens appear, where colourful flowers blossom as if they were coming out of trees, but something is strangely mechanical and segmented in the way they grow. It's similar to a time lapse: I can remember marvelling at documentaries in the 80s showing the accelerated growing process of fungi or flowers, but observing these flowers makes me feel quite uncomfortable, almost frustrated. Generated through automated self-replication processes similar to cellular automata, these are *Power Plants* 'grown' by neural networks.

I had seen the same images before in the Steyerl twin project at the Serpentine Gallery in London, only a few months earlier. The space was populated by the same *Power Plants*, whilst enigmatic electronic seals (something between cryptography, a QR code and mystical symbol) were positioned on plinths (Figure 154) as if they were the keepers of some encrypted message that only a smart phone could decode. The installation seemed a deceptive enactment (or enhancement) of the stimuli and distractions that characterise our relation to technology, but translated into the physical experience of space. It was literally

the effect of an augmented reality app that may change the way we experience space if things carry on the way we are going. Once the seals were unlocked, sentences began to float on smart phones screens, forcing us, the viewers, to see the world once again thorough our phones. I found it a distractive, almost annoying experience, as the promise of more information (or the fear of missing out on something) took me away from the enjoyment of the wonderous encounter with the work. But it all made sense in Venice: perhaps that awkwardness was deliberate, or at least that is what I thought when I could finally sit in front of the main video in the Venice installation room.

> These are documentary images of the future.
> Not about what it will bring, but about what it is made of. [533]

The film begins with these titles and unfolds through a scattered dialogic narrative between three main characters. Heja is a female character, a neural-net produced creature who is searching for her lost garden in the immediate future. She navigates through a digital universe that looks like real places: the canals of Venice, a forest, some generic Asian city of the future, but she also encounters 'real' footage from past news such as footage of social unrest and neo-Nazi demonstrations. The second character is the Neural Network itself, a voice-over that shows us what (or how) they see and narrates its own abilities and contradictions. "I can see one fraction of a second in the future, my predictions are based on extreme probability", it boasts, but 'his' AI generated imagery is blurry, split, clumsy, almost annoyingly amorphous. [534] Finally, the third character, sings through the disembodied voice of Kojey Radical, a London based musician with whom Steyerl began a collaboration in the occasion of *Power Plants*. As he is the only 'real' person in the film, his spoken word poetry sounds like a lamentation for humanity, but also an invitation to doubt, curiosity and openness, as "life blooms in the darkness where we cannot see".

The chronology of events is artfully confused, as *This is the Future* is a work about the indeterminacy of possibilities, in the future as much as in the past. Breaking the film into different chapters (characteristic of Steyerl's style), witty headings are used as disclaimers, or intermittent commentaries, often referring to the degree of probability for predictions to become true. This indeterminacy is purposefully cultivated by the artist. In a previous essay, Steyerl warned that authorities are too often invested in maintaining a 'state of indeterminacy' (she used examples from Spain and Turkey) in their refusal to recognise

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[533] Hito Steyerl, *This is the Future.*
[534] Interestingly the word "split" does not have a passive or active voice.

missing people as dead to avoid international persecutions.[535] In this process she discusses Schrödinger's (1887–1961) infamous experiment of 1935 in which a black cat in a closed box was exposed to the effects of a lethal gas. According to the experiment, one can only find out if the cat is dead by opening the box, but because of the quantum theory of superimposition, the cat is both death and alive until the box is closed. This state of indeterminacy preserves both these possibilities as real. However, in her essay Steyerl outlines how the state of indeterminacy is deliberately cultivated by violent regimes for the elimination of political dissidents, as a tool for silencing, prosecution and violence. These ideas are reflected in the work *Possible Title: Zero Probability* (2012), a performance lecture by Steyerl and Lebanese artist Rabih Mroué.

In *This is the Future* the focus of probability is not so much the present but the future. Clumsily pre-determined by automated systems, the film presents a future full of expectations, worries and disappointments where neural networks predict the growth of a bamboo as much as social unrest, taxes, traffic, rebellion, suicides, credit card rates. People are sent to prison because a neural network has predicted that they would commit a crime (this is essentially Heja's parable), and platitudes are presented as warnings, functional to the ingrained system of control enabled by the logics of pre-emption. The Network quest for the 'foreseeable', becomes a deterministic machinery that makes decisions on one's behalf and where the indeterminacy of the present is completely neglected in favour of utilitarian and privileged decision-making criteria. "Prediction takes the place of production" the Network proudly states.[536] "Yes, but why did you not predict Brexit?" asks Heja. "What is Brexit?" the network responds. "As the future was predicted the present became unpredictable", remarks Kojey.

[535] Hito Steyerl, "Missing People: Entanglement, Superposition, and Exhumation as Sites of Indeterminacy", *The Wretched of the Screen*, (Berlin: Sternberg Press, 2012).138- 159.
[536]The reference to story splitting was provided by the artist in a personal email.

FIGURE 155 HITO STEYERL, *THIS IS THE FUTURE*, 2019. INSTALLATION VIEW, 58TH VENICE BIENNALE
© HITO STEYERL

In contrast to *Zero Probability*, the mechanical, awkward growth of flowers, with its frustrating lack of naturalness, seems an invitation to the cultivation of indeterminacy as a space where things (and changes) are still possible. Poking at the wonderful promises of predictive technologies, Steyerl dwells in the grit of artificial intelligence modelling methodology by 'splitting stories' like a game programmer would do. The more a storyline is 'split' into smaller actions, the more information the neural network will have to simulate future stories. There is a significant analogy to be made here with cellular automata and Wolfram's theory discussed earlier. The action of splitting is therefore both a stylistic feature in the work and, for me, the key to understanding it. This becomes even more evident in the "Warnings" section of the film (Figure 156), which superimposes the following titles to Heja's AI-induced dance movements,

> The Future: A Health Hazard
> The future poses a 100% risk for human health.
> Statistically, in the future, all humans will die.
>
> Entering the future is a massive health hazard.
> Your body might stretch or fall apart.

The AI-generated prediction of Heja's movements have a stark incongruence with the light tone of the voiceover: she is an automaton, for whom split mechanical movements are far from natural; her distorted, deformed, faceless body is the most realistic version of today's automated attempts to predict dance. To obtain these images, Steyerl worked with AI engineers to train a neural network to simulate dance movement using the same logic at the basis of the 'power plants' growth. It's almost impossible to avoid thinking of Heja's dance as a very clumsy motion capture, yet it is precisely this clumsiness that, as we shall see, deserves further attention.

FIGURE 156 HITO STEYERL, *THIS IS THE FUTURE*, 2019. STILL FROM VIDEO © HITO STEYERL

Let us compare the work with *Future You* (2019) (Figure 157), a motion capture video by the international design collective Universaleverything, which, exhibited in London at the same time as Steyerl's Serpentine show, and also employs dance and artificial intelligence. Commissioned as a part of *AI More Than Human*, an exhibition at the Barbican Centre, in this interactive installation, visitors are invited to dance in front of a large screen, where a dynamic blob (a string of muscles?) repeats and enhance their movements in real time. "How do you feel when you see a synthetic version of yourself?"[537] states the exhibition label, inviting publics to keep an open mind towards what might be perceived as strange and

[537] This is the full content of the label: You are faced with a unique reflection of your potential, synthetic self. Starting as a primitive form, it learns from your movements to adapt, suggesting an agile, superior version of you. This artwork evolves, creating a new visual response for each visitor, generating 47,000 possible variations. *AI: More than Human*. Barbican Centre, London. 16 May—26 Aug 2019

uncanny. In this kind of playful encounter, not too dissimilar from seeing oneself thorough the altered mirroring features of a Snapchat video, the sophistication of AI is celebrated. The title of the work, however, is a false promise since the technology is one of mirroring and not predicting: what would happen if, rather than mirroring our movements, 'the synthetic self' in *Future You* actually predicted them? Predictions are instead the territory where Steyerl images operate, they are visualisations of probabilities; approximations of what the future could look like (if things stay as they are at present); visualisation produced through the imitation of organic growth by mathematical and logic reasoning. Enabled by automated systems of growth, Heja's scattered movements, are what remains memorable of the probable future. Her amorphous, deformed or mutilated body does not celebrate the wonders of artificial intelligence, but of a human life that has become a puppet in the hand of some sort of superior design, it is both hyper controlled and yet out of control.

The images in Steyerl's video, occupy a special place in the history of representation of bodies in movement. Incomparable to photography or film, they are more attuned with Horwitz's abstract time-space compositions or the workings of cellular automata: visualisation produced through the imitation of organic growth by mathematical and logic reasoning. And yet they emulate figuration in a clumsy, disturbing way, as shocking as a Cubist painting must have seemed when it first appeared in the early 20th century: the expression of a different perception of the world, seen through the lens of a fragmented light and perspective. Not so differently, the predictive imaging appropriated in *This is the Future* seems to imitate a life that has been "reduced" to multiple 'units' as if it had gone through a large colander and has struggled to recompose itself coherently. These are "poor images" of segmented, amorphous texture (an aesthetic seen to a certain extent in Pierre Huyghe's work *UUmwelt* (2019) also composed of neural network generated imagery): "their poverty is not a lack, but an additional layer of information which is not about content but about form".[538]

The creation of images through neural networks brings to the collective imagination a new vision of life as filtered through the looking glass of predictive technology. A lens that attempts to imitate human creation and at the same time changes it. We may grow increasingly accustomed to such forms of life as we have done with 3D or augmented reality; the technology might improve so much that we will no longer be able to see the difference, or it might simply be a passing trend that is part and parcel of this obsession with predictions. And yet these images will remain as documentations of the history of future predictions, not as visions, oracles or maps, but as the manifestations of a time when 'growing' and 'inductive emergence' enabled by programming became the preferred models for

[538] Hito, Steyerl, "Missing People", 156.

forecasting the future. In this sense, Steyerl's work, like Troika's panels, are examples in artistic practice of Wolfram's "law of computational irreducibility": they use computing to find out what cannot diversely be calculated in a mathematical formula. The artists' engagement with this aesthetic is both captivating and deceptive, for the curious experimentation with the possibilities of predictive technologies is also an attempt to understand their problematics.

9.6 Conclusion

Artificial intelligence, has become in recent years one of the biggest perceived risks to society: an incredible opportunity but also a huge threat; a source of uncertainty as much as a tool for decision making; something we must constantly query and pay attention to. While computer scientists and engineers have become increasingly engaged in the creative processes of cellular automata and neural networks, the artists discussed in this chapter point to its incalculability as a crucial part of the experience of existing in the world. What is missing in these images might not rely on their ability to capture and compute the smallest of entities, but rather on their inability to capture the incalculable essence of an entity and in pointing relentlessly to the existence of things that are and must be unpredictable and un-modellable. Such is scientific experimentation as well as creativity.

In a 2012 Ted Talk about deep time, Rudy Rucker spoke of a future where humans will grow what they need.[539] For instance, just like the power plants in Steyerl's installation, synthetic kelp will grow to build barriers against floods. As Heja is looking for her garden in the last part of the film, she finds plants such as *Hordeum murinum futuris*, that cures social media addiction, *Sisymbrium altissimum futuris,* that immunises from hate-speech and austerity propaganda, and *Malva neglecta futuris*, which does that marvellous things that all plants do "capturing sunlight and spending it for delight", aka photosynthesising . And the taxonomy goes on, as if it was a list of remedies to use in a survival strategy,

> Artemisia vulgaris futuris
> At daybreak or in the morning, take a petal and place it over your eye; this draws out commercial imagery and makes it clear.

[539] Rudy Rucker, "Beyond Machines: The Year 3000". TEDx, Brussels on November 22, 2011, accessed May 19, 2019, http://www.rudyrucker.com/blog/2011/11/14/tedx-brussels-beyond-machines-the-year-3000/.

Chenopodium botrys futuris

This plant is a stunner. It doesn't do anything. Just do the same and you will feel much better.

Perhaps one doesn't need to look that far into the future to find ways to survive (or resist). It may well be the case, as the work seems to suggest, that the best survival strategy resides in paying attention to the present, developing a critical stance towards the methods through which the future is being built today, and reclaiming for oneself the future that one wants to believe in. Paying attention might not sound as innovative as a strategy, and yet, the future is often an excuse to defer paying attention to the injustice and abuse in the here and now. In this period of climate change, existential risk, the Anthropocene, or whichever terminology one may choose, the task of *paying attention* to the present with openness and courage is becoming increasingly difficult. And yet it may still work better than rushed systems of alarm and a culture of the afterthought, as these are systems of immediate emergency response that have been used and abused in the context of long-term exposure to risk that characterises the contemporary experience. As Kojey says in the film: "The future has been written in the past and it will always catch up with you."[540]

FIGURE 157 UNIVERSAL EVERYTHING, *FUTURE YOU,* 2019. BARBICAN CENTRE

[540] Steyerl, *This is The Future.*

CONCLUSION

FIGURE 158 ANTOINE CATALA, *IT'S OVER,* 2019. SILICONE VACUUM PANELS, PUMPS AND TUBING. VENICE BIENNALE, 2019.

This thesis has analysed some of the ways in which risks have been (and can be) illustrated and portrayed in visual culture, and how artists have understood, appropriated and challenged such representations.

Writing about Hito Steyerl's work at the Venice Biennale in Chapter 9, I couldn't help but recall Antoine Catala's work, which was exhibited not far from Steyerl's at the entrance of the Italian Pavilion and is made up of nine inflatable signs in pastel colours containing messages such as "Non Aver Paura" (Fear not), "NO", or images of cuddly bears (Figure 158). The panels appeared to breathe and transpire before morphing into different messages. They had a sentient, almost extra-terrestrial presence as if they were otherworldly communicators, emanating from some imperceptible entity that has never heard of crowd control, traffic signs and warning messages, or of cheesy 'inspirational' quotes. A few steps from these signs, just outside the main exhibition, smoke had engulfed people and buildings, obfuscating the brightly coloured clothing of the group of Saami artists who were gathered around the Finnish Pavilion.[541] To one side, a team of Carabinieri in their squad gear were searching through a bin for an explosive; they had responded to a member of the public's report of something suspicious.

[541] The Saami are an indigenous Nordic population, representatives of their community had come to visit the Finnish Pavillion for the opening of the exhibition. What I had perceived as smoke was artificial fog, part of Lara Favaretto's installation "Thinking Head, 2017-2019" (2019).

This scene, so vivid in my memory, encapsulates for me the aesthetic experience of risk: I was safe, but also surrounded by a number of artefacts, images and situations that reminded me that something terrible could happen at any moment. As I was preparing myself to absorb the art, everything around me was simultaneously asking me to pay attention to the future: reassuring words, a sense of threat, images of a computed growth and the desire for another way of life.

In this dissertation I have provided many examples where art and risk management techniques share the same lexicon: safety instruction, fallout booklets, the predictive modelling and pre-enactments featured in and outside artworks. Whilst not exhaustive, this contribution to knowledge demonstrates the cogency and importance of discussing risk in an artistic context, and vice-versa. Artworks engage with the aesthetic dimension of risk and so do art publics, who can reflect on the social dimension of risk through looking at art. The art of today, in particular, reflects a present condition where risk informs and governs contemporary life through warnings, securitisation, terrorism, preparedness, artificial intelligence, and threats to human extinction.[542] Warnings of all sorts, populate public discourses and shape our reactions to real and imagined threats: from anti-terrorism posters in public transport to cigarette packages, from safety films to asteroid advance-alert systems or to images of floating trash islands in the ocean. Warnings can motivate, frighten, deter, disrupt or simply be ignored. What is the best way to warn others? And, more importantly, what does it mean to be warned? This research has focussed on some of the ways in which risk messages engage us in the preparation that we make about the future and the worries that we may have. It concerns warnings and being warned (or being worried).

"Why art?", one might ask. It is hard to find a better answer to this question than the one that Steyerl gave in a recent interview, and is worth repeating here,

> GK: What do you think about the fact that people, especially in the art scene, are more interested in the videos in white cubes and biennials about human rights violations, suppression or wars than the real thing? For example, they might be interested in an artwork about sectarianism in Beirut but not the issue itself.
>
> HS: There are several aspects to this question. First, if this is the case, there is probably a reason. One reason — among many others, including artworld jadedness and cynicism — might also be that generic information about "real" events is usually already ideological, commercial, and framed in a way that perpetuates the

[542] These aspects are all enumerated in the *2019 Risk Report* by the World Economic Forum.

> framework of the conflict by its conceptual categories. In contrast, some artworks (…) frame events in an unexpected way, that most importantly include the possibility of not only telling these stories differently, but also that things could be different in the first place. They do so by conjecturing, speculating, fictionalising, over-bureaucratising, and so on. There is a very valid reason for artworks about "real" events to be more interesting than generic news reports. People are interested because they can't stand vapid and meaningless news jargon any longer.[543]

When art responds to the facts of the real world (and in this case to the language and protocol of risk), it opens up spaces where things *could* be different, open and imaginative. This dissertation enters a territory where the relations between art and the visual vocabulary of risk meet and it asks what the two actually have to say to each other.

I have argued that warning signs, risk messages, drills or instructions (what I have called the anticipatory lexicon, or visual vocabulary of risk) transcend the context of risk management to enter cultural production and art. In so doing, they become aesthetic practices that perform in the world by framing our apprehension of it, redistributing affect, emotions and understandings. Throughout each chapter, this thesis has engaged with this repertoire of risk images and anticipatory technologies and has focussed on their visual and cultural analysis. This has been an effort to identify *patterns* and tropes used in the representation of risk, to unpack the logics that have led to their production and to recognise their significance in the way we prepare for or otherwise cope with disasters today.

The result is a richly illustrated visual *taxonomy* of the methods (or visual vocabulary) that have in the past been used to radically transform people's habits when it comes to public health and risk. The rhetorical-aesthetic approach that I have adopted, moreover, has enabled me to situate risk messages in their historical and geographical contexts to show how they are effectively socially, and culturally constructed tools, which effects and successes divert from the "grand narrative' of progressive betterment of humanity and the supposed pragmatism of purely mathematical models. The universalistic ambitions of much risk messages, their focus on a visual language that is universally readable and standardised, is arguably rooted in an "asymmetric exchange" between cultures.

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[543] Göksu Kunak. "Interview // Hito Steyerl: Zero Probability and the Age of Mass Art Production." *Berlin Art Link*. November 19, 2013, accessed 15 January 2020, http://www.berlinartlink.com/2013/11/19/interview-hito-steyerl-zero-probability-and-the-age-of-mass-art-production/. The interview focussed on Steyerl's collaboration with Lebanese artist Rabih Mroué. Her reference is clearly directed to the "Lebanese group", who has dealt with issues of war and violation of human rights with particular sensitivity.

This research therefore begins by focussing on the ways in which safety was constructed in the UK and the US in response to their particular problems emerged at the beginning of the 20th century (industrialisation, mass communication, international conflicts and diseases), but also consider how more ancient and pre-modern societies were able to deal with risk pragmatically with more rudimentary, yet ingenious methods (see for example the Nilometer). It demonstrates how universalised norms of safety and good behaviour do not apply in some part of the world (India, Mexico). Far from writing an orthodox art history of the visual vocabulary of risk, therefore, I have instead sought to trace a framework for future interdisciplinary research operating at the margins between art history, design, and risk. Under this perspective, the analysis of how risks are constructed in Anglo-America and Europe is only a starting point for comparing the consequences of asymmetrical exchange between cultures and where decentring the focus becomes a necessary continuation of future research.

A large focus of this work has gone into uncovering the phenomenology and formal qualities of the visual vocabulary of risk, to discover *how* effectively risk messages operate a *distribution of the sensible*. By conceptualising risk as an uncertainty reduction process that is both abstract and concrete, I have demonstrated that the safety messages that entered the visual imagination of the first half of the 20th century have been among the first attempts to use images to manage risk. Framing perils as possible risks, they introduced the belief that danger could be managed by appropriate behaviour. The first warning signs in the UK, the representation of risk in 1930s Insurance Advertisement (US), or the dissemination of safety messages in cigarette cards in and before the interwar period (US, UK), rarely deployed frightening or disturbing imagery but aimed at instructing and preparing. In a sense they warned through reassurance and encouragement. Their language rapidly became international, transitioning from public health to the promotion of safety on the road, at work or at home, and trespassing geographical boundaries with often clumsy results. Dangers suddenly became manageable risks that were presented in what I called "the instructional language of safety communication". As I have argued, this reassuring imagery, a stark contrast to past and to contemporary anti-smoking health warnings, defies the widespread belief that shock and fear are a powerful deterrent. On the contrary, it supports what many psychologists today assert: that confidence and reassurance (or self-efficacy), rather than fear, are determining factors in the choices that we make and the risks that we take. This dialectic between fear and reassurance, moreover, requires continuous negotiation. For instance, instructional guides of all sorts propose more-or-less reassuring plans of actions to manage risk or deal with threats of possible (real or imagined) annihilation by proposing

how-to techniques to survive. At the same time, and increasingly in recent years, data-driven (numerically oriented) risk representation technologies and monitoring systems have provided the evidence necessary to take informed decisions about the future and to reduce probabilities of uncertainty. Crime maps and emergency drills, financial forecasting visualisation programmes or early warning tsunami detection systems have become frequent features of risk management protocols and also of our visual language. Encountering this visual material, we are compelled to negotiate deterministic worldviews with the element of unpredictability (or uncertainty) that is part of our very existence.

What do all these disparate resources have in common? They are, as this thesis has argued, all examples of the predictive vocabulary of risk. Part of their function is, in fact, to help us to make decisions under conditions of uncertainty. They are, effectively, decision-making tools as much as aesthetic practices. Thus, they do not just produce risks, but also present them as traceable and manageable; anticipating potential threats they reorient the experience of what may be. What can we learn from such a wide range of material? Perhaps answers to a greater and more fundamental question: how can we honour, as humans, the drive to innovation, discovery and experimentation and at the same time avoid the negative effects that, we now know, this drive often produces?

We can do this by taking responsible risks, as this material tells us. The answer seems straightforward in theory, and yet it does not come that easily. One might find a balance by experimenting responsibly and cultivating safe spaces where risk-taking is possible, but how will these safe spaces look? Do we envisage them as clinical environments controlled by highly regimented safety protocols, classrooms where provocative speech and disagreement are banned (the original notion of a safe space),[544] or highly regulated training grounds for extreme sports? Guarded by clear boundaries and well-tested rules, these places are designed to protect us from known risks: in a sense, they are safe spaces that enable us to take risks responsibly. But what if we cannot comply with such protocols? What if we have to deal with things that we have never imagined or prepared for?

We may also need spaces where we are safe to make the kind of mistakes that may turn into something positive: places where risk is encouraged because it is self-contained, just as clear boundaries can reduce the danger or the scope of harm in the outside world. Scientific laboratories, testing grounds, artworks, may be places where we can experiment with

[544] See Mary Ann Hunter, "Cultivating the art of safe space", *Research in Drama Education* 13.1 (2008): 5-21. And Lynn C. Holley and Sue Steiner, "Safe space: Student perspectives on classroom environment." *Journal of Social Work Education* 41.1(2005): 49–64.

possibilities, as if in a fire chamber where grounds are carved out and surrounded by stones so that a fire may burn freely but not propagate.[545]

Images, instructions, data visualisation, even pre-enactments, are simulations (or representations) that attempt to do just that: they test "what-if" scenarios in relatively safe environments. Similarly, the aesthetic of risk is a safe space to experiment with uncertainty while also limiting its damages. The challenge that these risk anticipatory techniques present, however, is that we are too often trapped in what they say, in their promised or threatened futures. It's all very well to want to control uncertainty, but how one can nurture it? To this end, art is the place where new models are constantly created or reconciled, and where it is almost unacceptable to follow a well laid-out path. This is why art is the ideal space for reckoning with risk: art can model possible realities. And this is also why art institutions should be the ones to put the metaphorical stones around the fire and provide safe spaces for artists and publics to reflect (and debate) about how, when and which risks are worth taking. Art is thus a safe space for both understanding and cultivating resilience.

There is an apparent contradiction in seeking a safe space to take risk, and yet it is only in the condition of safety that risk-taking becomes a choice and not a necessity. Today it is easy to identify health and safety with risk aversion and risk-taking with deliberate choice. However, the governing of risk and an increasingly uncertain world that too often takes those decisions away from us forecloses our openness to the future, resulting in a loss of our ability to take risks responsibly — that is, to understand risk. There is irony in the observation that regulatory protocols of safety have become synonymous with risk aversion when they were in fact designed to enable people to take risk responsibly. "Is it a risk worth taking?" we may ask ourselves as the predetermination of algorithmic logic, and the data world's sensing technologies are predicting the demise of our future: the loss of species, cultures, of the planet and our privacy. "Is it a risk worth taking?" we may ask ourselves when we have lost any hope to know the truth because of divisive imagery, conspiracy rhetorics and the dissolution of reliable sources of information.

We may not actually feel safe when anticipatory technologies prevent us from making choices. We are all at risk, and yet risk may or may not be the route out of the problem. It is for this reason that we are required to "create" our own safe spaces anew, through a finely

[545] The metaphor of the fire chamber came to me following a talk by the philosopher Isabelle Stenger titled "Reclaiming Resurgence", which was part of the *After Progress* symposium organised by Goldsmiths College on November 29, 2019. Stenger argued that we must "dare to taste", "accepting the possibility of an encounter", or experimenting with caution as a prospect for resurgence from the Anthropocene. After the talk I asked her how she would reconcile the "dare to taste" with the idea of responsibility and safe guarding, and the notion of a safe space is my response to the question I put to Stenger.

tuned calibration that is only just scalable or modellable, affected as it is by our own emotions, histories and imaginations.

As I write the conclusion of this dissertation, the first pandemic of the 21st Century is overwhelming the world, propelling risk messages in a scale unseen before. Some of these messages rely on wartime rhetoric; others dispense trustworthiness through the obsessive presentation of data and evidence. Some appeal to scientific objectivity and neutrality and others insist on care and responsible citizenship. Hand washing signs peep out everywhere like in Heather Phillipson film that I discuss at the beginning of this thesis. There could not have been a more eloquent presentation of how the aesthetics of risk have entered life today. As the world is "united" against a common enemy, it appears as divided as ever when countries compete for the highest curve in the death rate race.

Little did I know, when this research on risk began, that it was going to see the light amid a pandemic, and yet the current crisis presents the best testing ground for this thesis.

Under this perspective, this dissertation might show how safety campaigns, survival manuals, posters and public information have in the past deployed fear, reassurance and rationality as strategies to persuade the masses, just as seen today. It might reveal that our relationship with risk might have been shaped by the way design, psychology and science have been mobilised to transform habits and decisions. It might provide historical context, depth and perspective to the current crisis. By considering risk both *in* and *outside* history (and therefore *in* and *outside* space), we are encouraged to abstract and be present all at once, as risk is an idea that perpetually separates presents-pasts, past-futures and future pasts to recombine them as memories, sights and expectations. [546] This research may urge us to reconsider the difference between *probability* and *possibility.*

The aesthetic-rhetoric approach that I have adopted, then, could help us founding new interpretative and practical grounds to navigate these times of simultaneous catastrophism and indeterminacy. It could "decolonise" the future by focussing on other possible presents (the future is colonised by risk, but also the idea of the future is a colonising agent that provokes the "displacement of unmodern people into past, slower, or frozen time"). [547] As a critical tool for people, decision-makers and designers, the aesthetic of risk sit on an under-

[546] "There is present of things past, memory; present of things present, sight; present of things future, expectation". Augustine, *The Confessions of St. Augustine,* trans. Hal M. Helms [Orleans, Mass., 1986], p. 246).
[547] Smith, Terry. "Contemporary Art and Contemporaneity." *Critical Inquiry* 32, no. 4 (2006): 681-707, 702. Accessed September 23, 2020. doi:10.1086/508087.

theorised field at the margin between risk and visual culture, opening new grounds for interdisciplinary arguments and collaborations. It provides a rich repertoire of ideas for designers, decision-makers and curators, and a critical tool for everybody else.

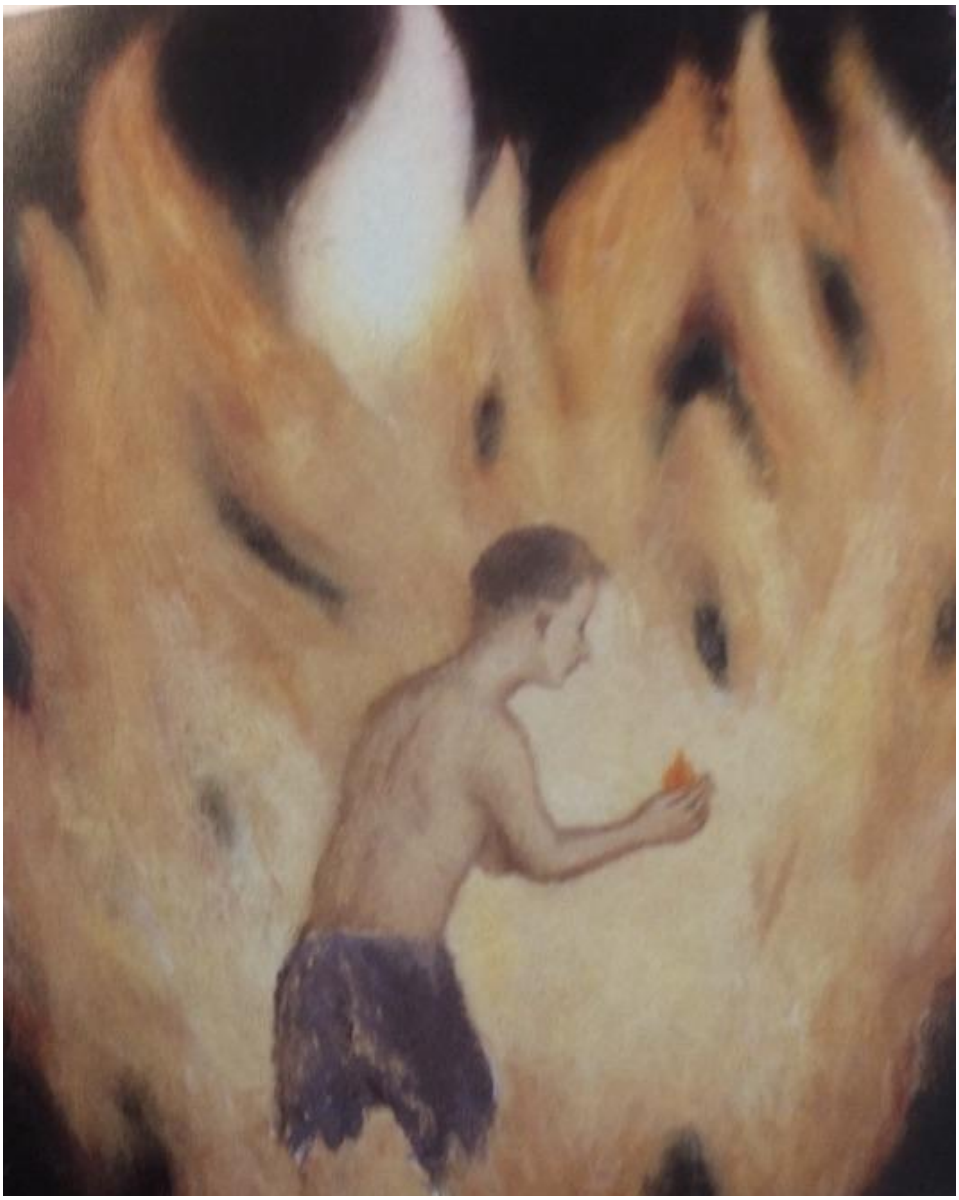

FIGURE 159

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